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ABSTRACT

The purpose of this investigation was to study the verbal interactions occurring between black and white teachers in recently desegregated social studies classrooms. Specifically, it sought to determine, by studying dyadic interactions, if there were any significant differences between: (1) black and white teacher's verbal behaviors with black and white targeted pupils; (2) the verbal behaviors of black and white elementary, junior high, and senior high teachers; and (3) if there were any significant correlations between findings resulting from observational data, teachers' estimates, and pupils' perceptions of pupil-teacher verbal interaction. Thirteen black and 61 white teachers participated in the study, as did 314 black and 314 white pupils. Twenty of the teachers taught elementary school, 32 taught junior high, and 22 taught senior high school. Each teacher was observed on four different occasions with the observation period averaging 40 minutes. The data proved that black and white teachers do differentiate their verbal behaviors with black and white pupils in desegregated social studies classrooms. Black pupils were not receiving opportunities equal to those of whites to participate in the core of the educational process in these classrooms.
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FINAL REPORT

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***Differential Dyadic Interactions of Black and White Teachers
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Social Studies Classrooms: A Function of
Teacher and Pupil Ethnicity***

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**U.S. Department of
HEALTH, EDUCATION, AND WELFARE**

**Office of Education
National Institute of Education**

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Dedicated

to

"Tash" who, unfortunately but of
necessity, must know "IT BEES THAT WAY"

FINAL REPORT

DIFFERENTIAL DYADIC INTERACTIONS OF BLACK AND WHITE TEACHERS
WITH BLACK AND WHITE PUPILS IN RECENTLY DESEGREGATED
SOCIAL STUDIES CLASSROOMS: A FUNCTION OF
TEACHER AND PUPIL ETHNICITY

Project No. 2F113
Contract No. OEC-6-72-0742-(509)

Geneva Gay

THE UNIVERSITY OF TEXAS AT AUSTIN
January 1974

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U.S. Department of
HEALTH, EDUCATION, AND WELFARE
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and daring to do so in record time.

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me unknowingly through their perseverance and insistence
that "a change has got to come." I hope this investigation
helps to speed the process!

GG

The University of Texas at Austin
January, 1974

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TEACHER AND PUPIL ETHNICITY

ABSTRACT

Geneva Gay
Principal Investigator

Contract No. OEC-6-72-
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The purpose of this investigation was to study the verbal interactions occurring between Black and White teachers in recently desegregated social studies classrooms. Specifically, it sought to determine, by studying dyadic interactions, if there were any significant differences between (1) Black and White teachers' verbal behaviors with Black and White targeted pupils; (2) the verbal behaviors of Black and White elementary, junior high, and senior high teachers; and (3) if there were any significant correlations between findings resulting from observational data, teachers' estimates and pupils' perceptions of pupil-teacher verbal interactions. Stated differently, this study was undertaken to test the hypothesis that teachers' verbal behaviors in desegregated social studies classrooms are a function of both the school level and the teachers' and students' ethnicity. Several other hypotheses relative to specific verbal behaviors common to the classroom were tested. Among these behaviors were public response opportunities availed to students, kinds of questions asked, quality and frequency of pupil responses, kinds of feedback offered by teachers in response to pupils' answers, teacher

afforded and pupil initiated work and procedural contacts, behavioral contacts, and pupil-pupil interactions.

A total of seventy-four teachers and 628 pupils participated in the study. Among the teachers there were thirteen Blacks and sixty-one Whites. The 628 pupils were evenly divided between Black and Whites. Twenty of the teachers taught elementary school, thirty-two taught junior high, and twenty-two taught senior high school. Each teacher was observed on four different occasions with the observation period averaging forty minutes. In addition to the observation data compiled from the Teacher Child Dyadic Interaction System, teachers were asked to give their estimates of pupils' classroom participation on the Teacher's Estimates of Extent and Quality of Pupil-Teacher Interaction, while pupils' perceptions of pupil-teacher interactions were measured by the Student Sociometric Questionnaire.

The analyses of variance of the observations data revealed that Black teachers, regardless of school level, created more direct contacts, asked more self-reference questions, received more wrong responses, offered less feedback, and made more positive behavioral contacts with pupils, while White teachers created more procedural contacts. Elementary teachers, without regard to ethnic identity, created more direct contacts, positive feedback, behavioral

contacts, and repeated questions more often than did junior or senior high teachers. By comparison, junior high teachers estimated the quality of white pupils' classroom participation to be better than that of Black pupils, and gave considerably less feedback than other teachers. Senior high teachers asked significantly more choice and product questions and gave more process feedback than other teachers. White pupils, regardless of school level or teacher ethnicity, received more open contacts and positive feedback, were asked more process questions, and gave more correct responses while Black pupils received more discipline contacts, rephrased questions, and teacher afforded work contacts and gave more wrong answers.

These findings were corroborated by students' perceptions of pupil-teacher verbal interactions. White pupils were chosen consistently by their classmates, whether in elementary, junior high or senior high schools or in classes taught by Black or White teachers, as the ones who read aloud, answered questions when no one else could, received praise from teachers, were the best students, and received more opportunities to participate in verbal interactions with teachers. Conversely, Black pupils were told to sit up and pay attention, didn't get to say much in class, erased the chalkboard and did poor work in class.

These data proved that Black and White teachers do differentiate their verbal behaviors with Black and White pupils in desegregated social studies classrooms. While White pupils received opportunities to participate in more substantive academic interactions with teachers were more positive, encouraging and re-inforcing toward them, Black pupils' verbal interactions and teachers were primarily non-academic, procedural, critical and non-encouraging. Thus, a reasonable conclusion follows that Black pupils were not receiving equal opportunities as Whites to participate in the core of the educational process in these classrooms.

These findings offer important implications for legislators and school administrators in assessing the effectiveness of current desegregation plans and for devising future desegregation programs, for analyzing and modifying teachers' racial attitudes, expectations and class behaviors in desegregated schools, for educators and staff development personnel in planning new instructional modules for pre-service and inservice teacher education, and for educational researchers who wish to conduct future empirical studies on pupils' and teachers' behaviors in desegregated school situations.

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CHAPTER I

Introduction

Assuredly, high among the most pressing concerns of contemporary educators are questions as to how to decrease the feelings of alienation Black youth feel toward school, how to increase their opportunities for educational equality, and how to improve their academic performance. For some the desegregation of school systems throughout the nation promises to provide the answers. The notion that as Blacks move into desegregated classrooms their attitudes toward self, their academic achievement, and the racial attitudes of both Black and White youth will improve appreciably are popularly acclaimed. However, available empirical data are inconclusive. Research conducted by Tumin (1958), Suchman, Dean and Williams (1968), and Giles (1959) attest to the general value of desegregation in improving intergroup relations, and equalizing educational opportunities. Weinberg (1971) reports that desegregation has a positive effect on Black students' self concepts and academic performance. Several other researchers report information which contradict these findings. Laurent (1970), Singer (1970), St. John (1971), and Purl and Dawson (1971) suggest that desegregation per se does not have a substantive effect on the academic performance of Black pupils. Nor does the mere physical presence of Blacks and Whites in the same classroom insure interracial interactions.

Rather, there appears to be other more important factors than physical presence operating in the classroom which have a determining influence of students' performances. Among these are instructional methodology, available supplies and equipment, instructional materials, and especially the interactional process going on between teachers and students. Repeatedly, in the scientific study of the educational process, attention turns to the teacher, his attitudes toward pupils, and the significant role he plays in determining what goes on in the classroom. Both are important determinants affecting the total teaching - learning process.

Davidson and Lang (1960) found a significant correlation between students' perceptions of teacher attitudes, their self-appraisals, and their academic achievement. Several years later Banks (1970) described teachers as "significant others" in the lives of Black students. Students validate their worth and identity in terms of their teachers' evaluations of them. This factor has a direct bearing on students' classroom behaviors.

Research reported by Rosenthal and Jacobson (1968), Good (1970), Mendoza and others (1971), Rothbart and others (1971), and Jeter (1972) suggest that there is a significant correlation between teachers' expectations of students and how they interact with students. Those students with high expectations generally received more attention than low achievers, as well as receiving greater opportunities to participate in classroom interactions. Both speculative and empirical data indicate further that classroom teachers typically

have negative attitudes and low expectations of Black youth (e.g. Gottlieb, 1964; Clark, 1964; Joyce, 1969; Howe, 1971).

In a recent study of pupil-teacher interactions the U.S. Commission on Civil Rights (1973; p. 6) declares that

The heart of the educational process is in the interaction between teacher and student. It is through this interaction that the school system makes its major impact upon the child. The way the teacher interacts with the student is a major determinant of the quality of education the child receives. Information on what actually happens in the classroom is thus important in assessing the quality of educational opportunity.

This statement affirms precedents previously established. Much of the more recent research on teaching focuses on the verbal classroom behavior of teachers with the entire class as the unit of analysis, in studying the effectiveness of the educational process (e.g., Amidon and Hough, 1967; Gage, 1969; Flanders, 1970).

Therefore, if it is indeed true that teachers do not expect Black students to perform as well as White students, that expectations determine the nature of pupil-teacher interactions in the classroom, and that pupil-teacher interactions is a crucial aspect of the educational process, then the question of what effect does ethnicity have on pupil-teacher interactions in the classroom merits serious research consideration. The persistent emphasis on the centrality of the teachers' classroom behaviors to the effectiveness of the learning process becomes even more important as desegregation increases and the number of instances where teachers are found working in multi- and cross-cultural situations increase. Such

research, long neglected and understandably difficult to design and conduct, seems imperative in our search for means of improving the total educational experiences of all pupils, both Black and White.

Objectives

The problem of central concern in this study is the lack of empirical data on teacher-pupil interactions in desegregated classrooms. To date little substantive research has been done on how teachers' and students' ethnicity affect how they relate to each other within the context of the teaching - learning process. The present study represents an important first step in this area of great need. It documents the verbal interaction between teachers and students in desegregated classrooms. Whereas much of previous interactional research tended to use the entire classroom as a unit of analysis, this investigation, using the precedents and procedures established by Brophy and Good (1969; 1970), focuses on the dyadic interactions between teachers and individual students as the unit of analysis. Moreover, it addresses a specific and singularly critical problem, the possible differential interaction in desegregated classrooms taught by Black and White teachers. While interaction analysis research typically concentrates on one grade or school level, this study examines classroom interactions on all three school levels - elementary, junior high, and senior high.

Specifically, this investigation was undertaken with two major objectives in mind. The first deals with teacher-pupil interactions. By examining the verbal dyadic classroom behavior of teachers, it seeks to determine whether (1) White teachers interact differently with White students than with Black students, and (2) whether Black teachers interact differently with Black students than with White students in the same desegregated classrooms. Teacher estimates of the quantity and quality of pupils' classroom interactions are analyzed to determine if these are differentially related to students' and teachers' ethnicity. That is, whether (1) White teachers' estimates of White students' participation in classroom interaction differ from their estimates of Black students, and (2) whether Black teachers' estimates of Black students' participation in classroom interaction differ from their estimates for White students. Students' perceptions of students participation in classroom interactions are also investigated.

The second major objective is to determine whether Black students and White students in desegregated classrooms interact with each other.

Additionally, the study seeks to determine if there are any relationships between observed teacher-pupil interaction, teacher estimates of teacher-pupil interaction, and pupil estimates of teacher-pupil interactions. Each of these objectives identify equally valid approaches and significant empirical hypotheses to be utilized in studying the educational

process. They also provide several vantage points from which to analyze the dynamics of teacher-pupil interaction in the classroom, and invariably the character and effect of the instructional process being operationalized.

Several questions provide direction to this investigation and make it educationally and empirically viable. Do teachers interact differently with pupils who belong to their own racial and ethnic group than with pupils of other racial and ethnic groups present in the same classrooms? Are these differential interactions statistically significant? What effect do the teachers' differential interactions have on pupils' responses to learning stimuli and social interaction in desegregated classrooms? Do teachers, observers, and students perceive teacher-pupil interactions similarly? Do students from different ethnic and racial groups interact with each other when they find themselves sharing the same classrooms? What effects do the general classroom climate have on teacher-pupil interaction? Thus, the criterion measure of classroom interaction is used to identify a number of specific hypotheses concerning pupil-teacher verbal behaviors in the classroom. The data used to test the hypotheses of this study are potentially valuable to facilitate making teachers more responsive to the educational and social needs of both Black and White pupils in desegregated school situations.

Major Assumptions Underlying the Study

Several assumptions concerning classroom interaction and desegregation as they affect the teaching - learning process combine to form the theoretical framework of this investigation. Included are the following:

1. Pupil-teacher verbal interaction in the classroom is essentially the core of the educational process.
2. Teacher attitudes are reflected in their classroom behavior and affect how they interact with pupils.
3. Desegregation does not necessarily lead to equality of educational opportunities for Black pupils.
4. Interaction between Black students and White students does not result automatically from desegregation. Rather, intergroup interaction among racially different pupils must be actively encouraged and deliberately planned.
5. Teachers do not treat all students in the same classroom similarly or identically.
6. Teachers' ethnicity and pupil ethnicity are important factors in determining the nature of pupil-teacher classroom interactions.
7. The kind of verbal contacts teachers establish with pupils in desegregated classrooms is more a function of pupil ethnicity than pupil sex.
8. The degree to which Black students participate in interactions (both responsive and self-initiating) with White students and teachers is a function of their sense of acceptability in desegregated classrooms.
9. White teachers may very well be over-solicitous toward Black pupils.
10. Those students for whom teachers have high performance expectations receive greater opportunities to participate in classroom interactions than low-achievers.
11. The interaction which teachers have with targeted pupils in desegregated classrooms is representative of how teachers interact with other pupils of the same ethnic group in the same classrooms.

12. The verbal behavior of the teacher population of this study is indicative of teachers' verbal behavior in general in desegregated city school systems like the one used in the present research.
13. Student-student interactions are important indications to consider in assessing the effectiveness of interracial relations in desegregated classrooms.

Hypotheses

Several major null hypotheses concerning interracial pupil-teacher and pupil-pupil verbal interactions in desegregated classrooms were tested in this study. They are:

1. There are no significant differences between White teachers' verbal interactions with White targeted pupils and Black targeted pupils in desegregated classrooms.
2. There are no significant differences between Black teachers' verbal interactions with White targeted pupils and Black targeted pupils in desegregated classrooms.
3. There are no significant differences between the verbal interactions of elementary, junior high, and senior high school teachers in desegregated classrooms.
4. There are no significant differences between the verbal behavior of Black teachers and White teachers in desegregated classrooms.
5. There are no significant differences between student-student verbal contacts initiated by Black targeted pupils and White targeted pupils in desegregated classrooms.
6. There are no significant differences between Black and White teachers in their estimates of the extent of Black targeted pupils and White targeted pupils' participation in classroom interactions.
7. There are no significant differences between Black and White teachers' estimates of the quality of Black targeted pupils and White targeted pupils' participation in classroom interactions.
8. There are no significant differences between pupils' perceptions of opportunities Black and White targeted pupils receive to interact verbally with Black and White teachers in desegregated social studies classes.

9. There are no significant correlations between observed teacher verbal behavior, teacher estimates of pupil-teacher interaction, and pupil perceptions of pupil-teacher classroom interactions, as measured by the various instruments, for any of the subjects participating in this study.

Each of these general hypotheses were tested further with regard to several specific hypotheses, according to school level (elementary, junior high, and/or senior high), and for the total number ($n = 74$) of teacher subjects participating in the study. Two exceptions need to be noted. Hypothesis 2 was not applicable to the senior high school category since the number of Black teachers in that group was too small to merit separate treatment. Hypothesis 8 was tested according to school level, but not for the total number of subjects. To do the latter would have served only to distort the data instead of providing additional useful interpretations.

Hypotheses 1 and 2 concerning pupil-teacher interactions in desegregated classrooms were tested specifically by examining each of the following particular dimensions of teachers' verbal behavior. These specific sub-hypotheses were derived from the Teacher-Child Dyadic Interaction System (DIS) and correspond with Variables 1 - 27 as described in Appendix F. They were:

- A. The total number of contacts teachers devoted to public response opportunities with pupils, including

- 1:1* Discipline contacts

*The first number symbolizes the major hypotheses identified above. The second one which follows the colon represents the

- 1:2 Direct contacts
- 1:3 Open contacts
- 1:4 Call-out contacts
- B. The total number of contacts teachers devote to asking different kinds of questions including
 - 1:5 Process questions
 - 1:6 Product questions
 - 1:7 Choice questions
 - 1:8 Self-reference questions
- C. The total number of responses pupils give to questions asked by teachers including
 - 1:9 Correct responses
 - 1:10 Partially correct responses
 - 1:11 Incorrect responses
- D. The total number of contacts teachers devote to terminal feedback including
 - 1:12 Positive (affirmative and praising) feedback
 - 1:13 No responses
 - 1:14 Negative (wrong and criticizing) feedback
 - 1:15 Process feedback
 - 1:16 Teacher giving the answer
 - 1:17 Teacher asking other pupils for a response
 - 1:18 Pupil call-out responses

sub-hypotheses--as it appears in Appendix F--which were used in testing the significance of variance. The reader should also understand that a second set of sub-hypotheses (supportative of Major Hypothesis 2) applicable to Black teachers is implied, since the same H_0 's were tested for both Black teachers and White teachers. If detailed they would read accordingly: 2:1, 2:2, 2:3 to 2:27. They are not specified here to avoid the repetition, awkwardness, and confusion that would result if an attempt were made to identify each of them separately. Thus, 27 variables were used to test H_{01} and 27 to test H_{02} .

- E. The total number of contacts teachers devote to sustaining feedback including
 - 1:19 Repeating questions
 - 1:20 Rephrasing questions or giving clues to the answers
 - 1:21 Asking new questions
- F. The total number of contacts teachers devote to private work-related interactions including
 - 1:22 Pupil-initiated work related contacts
 - 1:23 Teacher-afforded work related contacts
- G. The total number of contacts teachers devote to private procedural interactions including
 - 1:24 Pupil-created procedural contacts
 - 1:25 Teacher-afforded procedural contacts
- H. The total number of contacts teachers devote to behavioral interactions including
 - 1:26 Positive contacts
 - 1:27 Negative contacts

Major Hypothesis 5 was tested specifically in terms of initiators and recipients of student-student interaction in both Black teachers' and White teachers' classrooms. These two sub-hypotheses correspond to Variables 28 and 29 as they appear in Appendix F.

Major Hypothesis 8 concerning pupil estimates of pupil-teacher classroom interaction was tested specifically in regard to each of the nine items on the Student Sociometric Questionnaire. These included:

- 8:32 Students asked to read the lesson aloud.
- 8:33 Students asked to sit up and pay attention.
- 8:34 Students complimented for doing a fine job on reports.

- 8:35 Students asked to erase the chalkboard.
- 8:36 Students asked to answer questions when no one else could.
- 8:37 Students who don't get to say much in class.
- 8:38 Students who do poor work in class.
- 8:39 Who was the best student in class.
- 8:40 Students who were called on most often by the teacher.

These hypotheses were tested according to (1) the number of votes each targeted pupil received on each of the items (Hypotheses 8:36 - 8:40 described above); and (2) the number of targeted pupils named for each of the items. The second set of H_0 's are not detailed here to avoid unnecessary repetition. In Chapter 3, which discusses the results of the tests for significance of variance, these hypotheses appears as H_0 8:41 - 8:49. For more details on describing these refer to Appendix F.

The study also sought to determine if there were any significant correlations in teacher behavior between the three school levels, and between observed teacher behavior, teacher perceptions of pupil-teacher interactions, and pupil perceptions of pupil-teacher interactions.

Definition of Terms

The completion of this investigation on pupil-teacher verbal behavior in desegregated classrooms required the use of some terminology which is atypical in common everyday usage. These terms are unique to the research design and methodologies employed, and their definitions were

derived from the context in which they were used. Knowing what they are and understanding how they were used is essential if one is to fully understand the meanings, significance, and implications of the data resulting from the study.

- Desegregated classrooms--Black and White pupils sharing the same physical space of the classroom, but not necessarily functioning as an integrated, cohesive unit and interacting together on the basis of mutual respectability.
- Integration occurs when Whites and non-Whites share the same proximity and function as a cohesive unit with regard to racial identity and interact on the basis of mutual respect and acceptability.
- Cross-over Teachers--Those teachers who were transferred from previously all-white or all-black schools as a means of achieving desegregation in school faculties. For example, Black teachers who were transferred from an all-black school to an all-or-predominately white school, and visa versa.
- Interaction Analysis--A systematic, objective technique used to collect data on and analyze classroom dynamics by observing and recording pupil-teacher verbal interactions.
- Dyadic Interaction--Verbal classroom communication in which the teacher is dealing with a single individual student at a time, as opposed to several students or the entire class.
- Targeted Pupils--Only those select Black and White pupils in each classroom whose verbal interaction with teachers were observed and recorded during the course of collecting observational data on pupil-teacher classroom interactions.
- Observers (coders)--Those eight persons who were trained in the use of the Teacher-Child Dyadic Interaction System and collected the observational data on pupil-teacher interactions by visiting and coding the verbal exchanges observed.
- "Project Hour"--The schedule time in which that academic activities (e.g., social studies classes) used for coding pupil-teacher verbal interaction took place. It ranged in clock time from forty to fifty-

five minutes, depending upon the class schedules and planned activities of the individual participating schools.

- Contact--Any kind of verbal interaction or exchange between pupils and teachers.
- Private Contact--Verbal interaction between a teacher and pupil which is meant only for the participating pupil involved and not for the class as a whole (Example: The teacher helps the pupil with seatwork assignments).
- Public Contact--Verbal interaction between a pupil and teacher which takes place in the presence of other students and is for the benefit of the entire class.
- Response Opportunities--Opportunities deliberately created by the teacher to get students to participate in verbal interactions or exchanges with the teacher. Usually takes the form of a question.
- Feedback--A means of engaging teachers in verbal exchanges with pupils in which the teacher comments on the pupils' responses to questions. It may be positive or negative (acceptance/rejection; praise/criticism), sustaining or terminal.
- Terminal Feedback--Teacher behavior in reaction to students initial responses which does not encourage additional comment. (For example, the teacher moves on to a second student after noting the first one failed to give an appropriate answer to the question asked).
- Sustaining Feedback--Teacher behavior which prolongs or gives pupils additional opportunities to respond to questions asked.
- Process Feedback--Teacher explains to pupils how to go about arriving at an answer--the reasoning process--instead of merely giving the correct answer to the question.
- Self-Reference Questions--Teacher invitation to pupils to participate in verbal interaction by giving some non-academic and personal information (Example: "What's your preference, attitude, opinions . . .").

Review of Related Research

Even the most cursory search of social science and

educational professional literature reveal a wealth of materials testifying to the general positive value of interracial contacts in social and educational situations. Equally as prolific are theoretical discussions and empirical research which document the pre-eminence of teachers' verbal behavior in the instructional process, which consider pupil-teacher interaction as the core of the educational process, and which view interaction analysis as a viable approach to analyzing and evaluating what actually happens in the classroom.

Despite the prominence of studies of interaction analysis and teacher verbal behavior in the classroom (e.g., Amidon and Hough, 1967; Ebel, 1969; Gage, 1969), and the professed potential of desegregation for improving interracial relations and Black pupils academic performance (e.g., Beggs and Alexander, 1969; O'Reilly, 1970; Weinberg, 1970; Integrated Education Associates, 1972) the question of primary concern to this study--pupil-teacher interaction across racial lines in elementary and secondary desegregated schools--has been largely untouched by educational research. Theoretical and speculative statements are numerous about how White teachers interact with Black pupils but empirical data either confirming or discrediting them are indeed sparse. Contrarily, theoretical postulates and empirical data on Black teachers' attitudes toward and interactions with White students are virtually non-existent. Continued neglect of these crucially important aspects of schooling will contribute mightily to

the general malaise with regard to improving educational opportunities in desegregated situations.

Arguments attesting to the positive value of desegregation have been issued by educators, social scientists, and social and civil rights groups alike. Beginning in the wake of the seminal decision on school desegregation in 1954, they have pervaded such momentous documents as the Coleman Report on equal educational opportunities, the Kerner Commission Report on social disparities, and continue today even as the controversy over busing rages. Several researchers have made some initial attempts to assess the effects of desegregation on intergroup relations and the academic performance of Black youth. Although the research methodology and empirical instrumentation (e.g., systematic observation and analyses) are often unsophisticated and the results are only tentative, they do contribute important insights to better understanding the dynamics operant in desegregated classroom experiences.

Fancher (1971) reports the results of interviews with Black students in several selected cities of three southern states concerning their experiences with desegregation. The interviewees expressed displeasure at finding themselves in schools where they felt unwelcomed and isolated. Most failed to see how desegregation could be beneficial to them. Gardner (1971) attempted to assess the effects of busing Black elementary pupils into white suburban schools relative to academic achievement and intergroup interactions. He

found no significant differences in Black pupils' grades or test scores, although attitudes of Black and White pupils toward each other tended to improve.

Laurent (1970) suggests that neither pupil race nor the racial composition of the school per se has a substantive effect on the academic performance of pupils when other variables are controlled. Studies conducted by Evans (1969), Singer (1970), Robertson (1970), and Purl and Dawson (1971) produced similar results. Despite Weinstein's (1971) predictions that desegregation would be beneficial to children of all races the data reported by these researchers as to whether this actually happens are by no means conclusive. No appreciable increases were noted in Black students' academic achievement as a result of desegregation. Rather, there appears to be multiple variables operant within the classroom which affect student performance. Among these are the degree of psychological and social integration present in the classroom, teacher attitudes and their concomitant verbal behaviors toward Black pupils, the social climate of the classroom, and the extent to which Blacks feel comfortable with and accepted by their White classmates (e.g., St. John, 1971; Chesler, 1971).

The philosophical assertions of educators, such as Cuban (1970) and Banks (1970; 1972) assign special importance to the teacher's role in determining the success or failure of the educational process for Black youth. Banks explains

that teachers are significant others in the lives of students. As such their attitudes toward the Black student, their perceptions of the child's cultural and personal experiences, and their expectations of the child are much more important in determining how the child relates to the classroom situation than instructional methodology or curricular materials. Henderson and Bibens (1970), and Craig and Henry (1971) concur that negative teacher attitudes and unrealistic expectations are influential factors determining how White teachers interact with Black students.

Among the few empirical attempts that have been made to study these allegations scientifically are the investigations of Ferguson (1970), Cohen (1971) and DeVries and Edwards (1972). Cohen studied the status rank ordering of a four-man interracial group working in two-man teams on tasks requiring discussion and decision-making. He reports that Blacks tend not to take the lead in initiating discussions and to be acquiescent to Whites in decision-making. Ferguson (1970) and DeVries and Edwards (1972) report minimal interactions between students of different racial and ethnic backgrounds. Ferguson attributes this to the failure of teachers to actively promote interracial communication between students in the classroom. DeVries and Edwards recommend the restructuring of desegregated classrooms to facilitate positive and constructive relationships among ethnically and racially different students.

These findings are substantiated by Dennis and Powell (1972).

They discovered that pupils interacting across racial lines tend to space themselves at a greater impersonal distance at the junior high school level than at the intermediate or primary grade levels. If these tendencies are to be reversed, opportunities for intergroup activities and interracial communication in multi-cultural and multi-racial classrooms must not be left to chance. Rather, classroom activities must be deliberately planned with these objectives in mind.

According to Sachdeva (1973) school integration has a positive affect on the feelings and attitudes of both Black and White students. However, he adds that personal contact by itself does not lead automatically to improved racial understanding. Rather, when experiences are designed deliberately to bring students together, and when institutions minimize racial status differences positive interracial attitudes and interactions may develop.

Lachat (1973) uses a combination of interviews, questionnaires, and observations to examine the effects of school environments and intergroup contacts on students' racial attitudes. She, like Sachdeva, postulates that contact alone will not break down stereotypes between Blacks and Whites if the contacts occur in situations where status distinctions are maintained. Data were called from three suburban high schools, identified as segregated, desegregated, and integrated, in terms of opportunities for black-white pupil interactions as reflected in the school's racial composition, grouping

procedures, and curriculum options. In addition to studying pupils' racial attitudes she also describes situational characteristics which affect pupil attitudes. These include school philosophy, classroom racial balance, staff racial balance, curricular offerings, library materials on the Black experience, and patterns of students' interracial interactions. The most favorable racial attitudes were expressed by students in the integrated school, while the least favorable attitudes were found among students at the desegregated school. The integrated school was committed to implementing integrated multi-cultural education. Programs were designed for the pupils to achieve knowledge of and develop respect for all ethnic groups through curriculum revisions, open classroom encounters between Blacks and Whites, the use of heterogeneous groupings, and operationalizing equal educational opportunities. Lachat emphasizes the necessity of examining carefully the situational variables surrounding attitudinal data in order to better understand pupil behavior in interracial school settings.

Research further indicates that teacher expectations of pupil performance largely determine how they will achieve, and what opportunities teachers avail to students to participate in classroom interactions. Rosenthal and Jacobson's (1968) seminal study documents a direct correlation between these two variables. If teachers expect students to perform poorly, it becomes a self-fulfilling prophecy in that students

will perform poorly. Kester and Letchworth (1972) replicated this study, using seventh grade students in mathematics and English classes. Their results did not support the postulate that contrived teacher expectations have a significant effect on pupil achievement and attitudes toward school and self. However, they did find that teachers' expectancies influence their interaction with students. Teachers spend more time with superior students and communicate in a more positive-accepting-supportive manner than with average or low achievers. These conclusions relative to expectations and frequency and quality of pupil-teacher interaction concur with earlier findings reported by Hoehn (1954) and Lahaderne (1967).

Brophy and Good (1969) and Good (1970) have examined the effect of teacher expectations on interaction with pupils in first grade classrooms. Teachers ranked their students in order of achievement and this served as the measure of expectancy. In both studies only minor differences were found in the frequency of teachers' interaction with students of different achievement levels, while important variations occurred in the quality of teacher contacts with students of high-achievement and low-achievement levels. Furthermore, teachers communicate their expectations through their behavior and students, in turn, begin to respond in ways confirming these expectations (Brophy and Good, 1969b). Thus, the self-fulfilling prophecy is actualized.

The findings of Mendoza, Good and Brophy (1971), and

Cornbleth, Davis and Button (1972), each of which employed the dyadic interaction methodology (designed by Brophy and Good, 1969a) to study teachers' differential verbal behaviors in junior and senior high school respectively, are consistent with those of Brophy and Good. Jeter (1972) used similar measures and methodologies (e.g., expectancy and dyadic interaction) to analyze teacher interaction with fourth grade social studies pupils. She, too, records significant differences in teacher behavior in accordance with expectancy.

This writer is aware of only one significant research study to date which focuses directly on the way White teachers interact differently with White pupils and non-White pupils. Conducted by the U.S. Commission on Civil Rights (1973) this investigation examines teachers' verbal behaviors with Anglo and Mexican American students in California, New Mexico, and Texas. The Flanders System of Interaction Analysis was modified to specify ethnicity. The results show disparities between teacher interaction with Mexican American and Anglo students in six of the ten categories of the Flanders System. Evidence indicates that (1) Mexican American students receive significantly less praise and encouragement from teachers; (2) Mexican American students hear teachers accepting and/or using their ideas less often than do White students; (3) teachers spend significantly less time asking questions of Chicano pupils than Anglo pupils; (4) teachers address significantly more noncriticizing talk (a composite measure of positive responses, questions, lecturing, and

giving directions) to Anglo pupils than to Chicanos; and (5) Mexican American students speak significantly less in class than do Anglos, both in terms of responses to teachers and on their own initiative. These disparities did vary significantly with the ethnicity of the teachers--that is, White teachers and Mexican American teachers acted similarly in their verbal interactions with Anglo and Chicano pupil. One difference was apparent. While Mexican American and Anglo teachers gave similar amounts of praise or encouragement to Chicano pupils, Mexican American teachers gave considerably more praise to Anglo pupils than did their Anglo colleagues. According to this research the total picture of interaction in desegregated classrooms is one in which teachers fail to involve Mexican American students to the same extent as Anglo students, relative to quantitative and qualitative interaction. If it is indeed true that classroom interaction is of crucial importance to effective teaching and learning, then it is evident that Chicano pupils are not receiving the same quality of education as Anglo pupils in the Southwest.

The empirical research and the professional literature cited above suggest that available data on the effects of desegregation per se on academic performance, racial attitudes and intergroup behavior of Black and White pupils and teachers are inconclusive. However, empirical evidence does attest to the fact that teachers exemplify attitudes and teaching behaviors which differentiate between pupils on

the basis of ethnicity and expectations of performance, and that pupils' classroom behavior correlate positively with teachers' attitudes and expectations. Valuable though this information is, much of it is non-empirical in nature, and, as such, is not as reliable as data which result from systematic observations and analyses of pupil-teacher verbal behavior across racial lines would be for expediting teaching and learning in desegregated schools.

In light of the severe paucity of research bearing directly on pupil-teacher interaction in desegregated classrooms, the desirability, even the necessity of such studies, appears obvious. Fortunately, recent developments in classroom interaction analysis (e.g., Davis and Slobodian, 1967; Brophy and Good, 1969a) now make possible quite powerful instruments for studying interactions of teachers with individual students. Focus on dyadic interactions does not assume that all pupils in a class are treated similarly or identically as do most extant classroom observational systems (e.g., Flanders, 1963; Medley and Mitzel, 1963; Morse and Davis, 1970). It assumes instead that teachers do interact differently with individual students. We are not absolutely sure about all the factors accountable for these differential interactions. Research data to date argues convincingly that teacher attitudes and expectations, and pupil behavior toward teachers are among them. It is also likely that students' ethnicity, as the U.S. Commission on Civil Rights Report suggests, causes teachers to interact

differentially with students. This measure has had a major impact on other aspects of education (e.g., curriculum development, philosophy, and teacher training), and is too significant to be dismissed without serious attention. Data which result from the application of dyadic interaction analysis techniques to the study of interracial pupil-teacher behavior can be accepted as reliable and valid given the precedents that have already been established in using this technique to study pupil-teacher verbal interactions in general.

Survey of the Study

The completion of this study required four major kinds of activities, or stages of development. The first stage involved germinating an idea, and submitting it in the form of a research proposal to the U.S. Office of Education for the purpose of acquiring funds to support the project. The proposal explained the objectives of the project, research activities to be undertaken, the educational merits of the idea, and the funds needed to complete the study. This was submitted to the Regional Office of Education (Dallas, Texas). After review by a panel of judges the proposal was accepted as valid and worthy of empirical investigation, and funds were granted to support the project. These initial plans were finalized by June, 1972.

During the second stage of development the investigator was concerned primarily with identifying a research site and the sample population to be used in the study.

By July 1972 a school district in central Texas had been contacted and a request for permission to work with its teachers had been submitted. The school district's committee on research reviewed the proposal but approval was withheld until after the 1972-73 academic school year began. Finally in October 1972 the administration granted its permission for the investigator to proceed with collecting data.

A list of schools and prospective teacher participants were then compiled. Each of these candidates was visited by the investigator to explain the nature of the research to be conducted, and to obtain their agreement to participate in the study. Once the teacher subjects were identified some means had to be devised to select the targeted pupil population. This was necessary since the study called for examining teacher interaction with individual students instead of the entire class. By the end of November 1972 all of these arrangements had been made.

Selecting instruments and training coders comprised the major activities of the third stage of the project's development. Since the study was designed to investigate teachers' verbal behavior with individual students in desegregated classrooms, it required the use of an instrument which could record dyadic interactions. The Pupil-Teacher Dyadic Interaction Observation System, designed by Brophy and Good (1969) was chosen as the one most suitable for use in this study. It was modified

somewhat to allow for recording student-student interracial interactions. These changes were made because of a second research interest--what kind of interactions exist between Black students and White students in desegregated classrooms. The dyadic format of the Brophy-Good instrument was maintained in the modifications. Coders were then trained in how to use the instrument in the classroom.

Three other instruments were developed for use in collecting other kinds of data needed to complete this study. The Teacher Estimates of Extent of Pupil-Teacher Interaction and the Teacher Estimates of Quality of Pupil-Teacher Interaction were designed to obtain estimates, according to the teachers' perceptions, of pupil participation in classroom interactions. The Student Sociometric Questionnaire was designed with a similar purpose in mind for pupils. This instrument allowed students to give their perceptions of pupil-teacher classroom interactions.

The fourth stage was devoted to collecting data. Observers spent several hours in each of the teachers' classrooms recording dyadic interactions between the teacher subjects and the targeted pupil population. These data were collected in such a way as to preserve the ethnic identity of both the pupil and teachers participating in the classroom interactions. The observers also recorded pupil-pupil interactions in a similar fashion. The other instruments were administered after the coders had completed their classroom observations. All data were collected between January and March 1973.

Time was spent in the final phase of the project preparing the data for computer analysis, and analyzing these data. Data obtained on the various instruments were subjected to analyses of variance and correlational analyses. The results were interpreted in terms of testing the major hypotheses, and the research and educational implications of the overall study.

Significance of Study

Admittedly, this investigation is neither exhaustive nor faultless. But, it is indeed significant. It represents an initial foray into an area of educational research which has been long neglected in the continuous search for a better understanding of the dynamics of the classroom instructional process. It provides a different vantage point from which to analyze the effects of desegregation on the educational process of both Black and White pupils. It focuses on both Black teachers and White teachers verbal behaviors. It offers a pool of empirical data against which intuitive and speculative explanations of the effects of desegregation on teachers' and pupils' classroom behavior can be tested. It is also significant in that it attempts to study interracial pupil-pupil interactions in desegregated classrooms systematically, as well as pupil-teacher interactions. It further seeks to determine if there are any relations between how outside observers, teachers, and pupils perceive the same classroom situations. Historically, pupil perceptions of verbal interactions

between pupils and teachers, and Black teachers' verbal behavior in desegregated classrooms, have not been too prominent in professional literature or educational research.

Although the findings and conclusions which result from this investigation on pupil-teacher verbal behavior in desegregated classrooms may well be preliminary and rather tenuous, they do attest to the cruciality of research in these and similar areas. The dearth of empirical data in the professional literature on teacher behavior in desegregated classrooms is further vindication of the research efforts undertaken here. The findings derived from this study are directly applicable to the entire educational process. They can be used in pre-service and in-service teacher education programs in general, and on all levels relative to effective teacher performance in culturally pluralistic and racially-mixed classrooms. They are useful in analyzing the interrelatedness of teacher attitudes and expectations, and their classroom behavior. These results are useful as a basis from which to help teachers become aware of their differential behavior patterns, and how these might be modified. Implicit are implications for modifying the general classroom climate so as to make it more conducive to learning. The study can also be employed as a feedback tool in promoting better understanding, cooperation, and intergroup relations between students of different ethnic, racial, and cultural backgrounds. Furthermore, the data

resulting from this investigation are useful in redefining and designing teacher education to the end of moving the preparation programs closer to achieving accountability in terms of achieving equality of educational opportunities, relevance, and quality education for all pupils attending desegregated schools.

Another worthy significance is the usefulness these data will be to other educational researchers in generating hypotheses which warrant additional empirical investigations.

Chapter Summary

This chapter has asserted the need and significance of empirical analyses of pupil-teacher and pupil-pupil verbal behavior in desegregated classrooms. It has emphasized the centrality of pupil-teacher interaction to the total educational process. Pertinent literature and relevant research related to interaction analysis of teachers verbal behavior and the positive value of desegregation in regards to equalizing educational opportunities were reviewed. The major assumptions underlying this investigation were stated, the major hypotheses to be tested were identified, and the technical terminology specific to the research was defined. Finally, a general survey of the entire plan of study was outlined.

Chapter II explains the procedures used to identify the sample population, the data collection process, and the methods employed to analyze these data to determine if any observed differences were statistically significant.

CHAPTER II

PROCEDURES

Research Site

This study was conducted in the public schools of a major city in central Texas. The school district was initially contacted about the possibility of collecting data on cross-cultural pupil-teacher classroom interactions in its schools in March 1972, after the research proposal had been approved for funding by the U.S. Office of Education. Permission to proceed with the study was not granted until October 16, 1972.

The school system has only recently become involved with trying to achieve city-wide desegregation in its public schools. Busing, as a means of achieving desegregation, began two years prior to the beginning of the investigation. Previous to that time, the schools had experimented with "cross-over teachers".

The city's population, according to the 1970 Census, is approximately 252,000. Blacks comprise 11.9% of this population and Whites 72.5%. The remaining 15.6% are Mexican-American. The school district's total pupil population, in grades 1-12 for the 1972-73 school year was 54,480. Sixty-four percent of these students were

Anglo, 21% Mexican-American, and 15% Black. Further explanation of these data are explained graphically in Figure 1.

There are fifty-six elementary, twelve junior high, and seven senior high schools in this city. Research data were collected from only fifteen of these schools--four elementary, seven junior high, and four senior high schools. Initially twenty schools were contacted about participating in the study. Four of the eight elementary schools, and one of the five senior high schools on the original list did not qualify, since their pupil populations were not sufficiently racially-mixed (Black-White) to net the kind of ethnic distributions in the classrooms which the study required. All of the junior high schools met the criteria. Table 1 presents the ethnic distribution of teachers employed in the fifteen participating schools. In all instances White teachers comprised at least three-fourth of the faculties. In some cases the number was as high as 92%. Black teachers numbered as few as 4% at one school and as many as 25% at another.

The ethnic breakdown of the total pupil population for the participating schools is described in Table 2. None of the schools reported a Black pupil population of more than 21% of the total. In four of the schools Black pupils comprised 10% or less of the total enrollment. In all of the schools White students comprised at 50%

Figure 1

ETHNIC DISTRIBUTION OF THE TOTAL PUPIL
POPULATION ACCORDING TO SCHOOL LEVELS
FOR THE ENTIRE SCHOOL DISTRICT

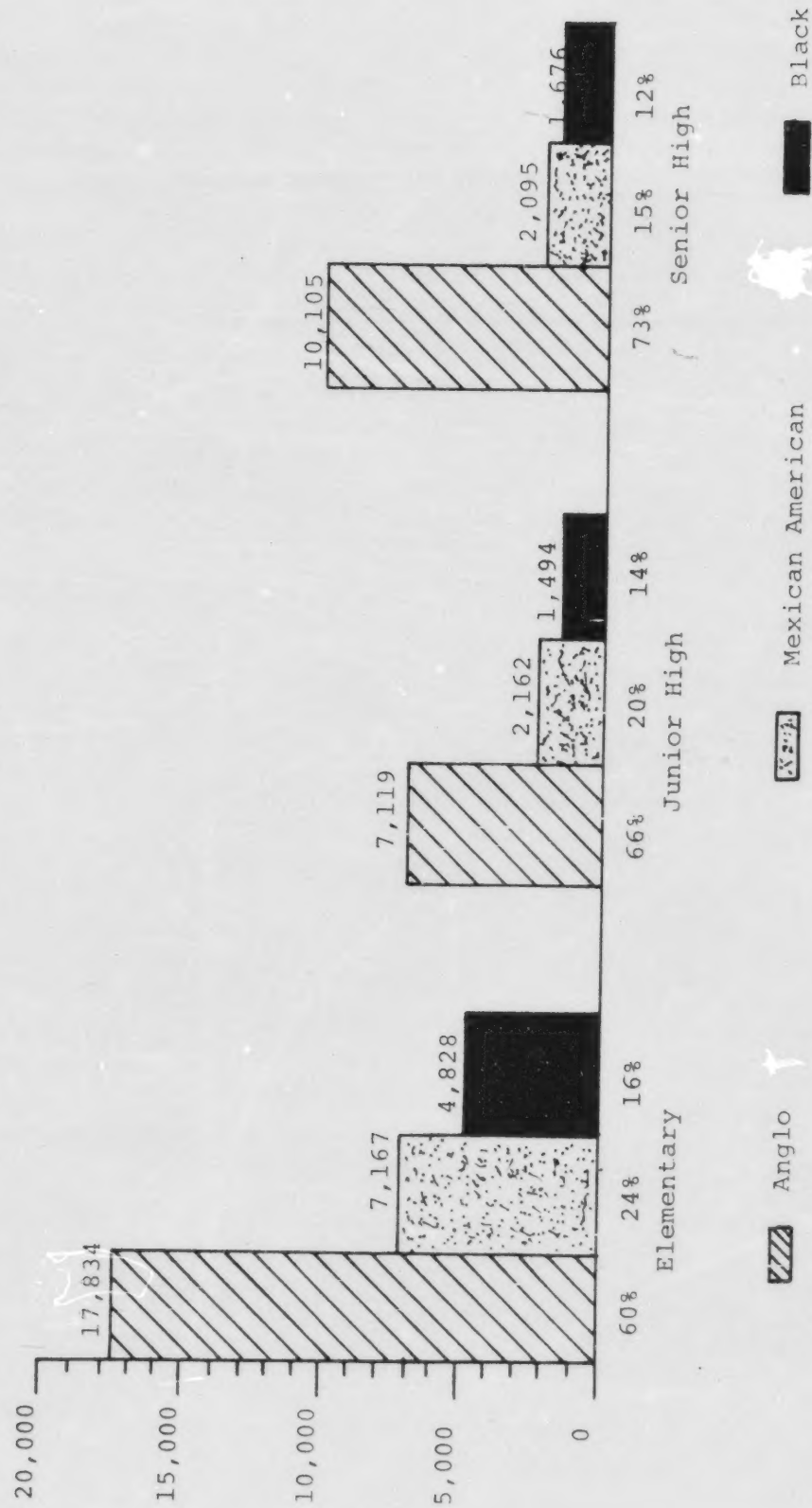


TABLE 1

ETHNIC DISTRIBUTION OF THE TOTAL NUMBER OF
TEACHERS EMPLOYED IN THE FIFTEEN SCHOOLS
PARTICIPATING IN THIS STUDY

School Name	Level	Total Number of Teachers	Ethnic Distribution					
			White		Black		Mexican-American	
			Number	%	Number	%	Number	%
1	EL	30	25	83%	5	17%	--	--
2	EL	31	24	77%	6	20%	1	3.0%
3	EL	24	17	71%	6	25%	1	4.0%
4	EL	14	10	71%	3	22%	1	7.0%
5	JH	70	64	91%	6	9%	--	--
6	JH	38	31	81%	6	16%	1	3.0%
7	JH	46	39	85%	5	11%	2	4.0%
8	JH	49	45	92%	2	4%	2	4.0%
9	JH	65	52	80%	9	14%	4	6.0%
10	JH	73	65	89%	6	8%	2	3.0%
11	JH	51	39	76%	10	20%	2	4.0%
12	SH	77	71	92%	5	7%	1	1.0%
13	SH	136	120	88%	13	9.5%	3	2.5%
14	SH	139	121	87%	16	12%	2	1.0%
15	SH	71	62	87%	9	13%	--	--

EL - Elementary School
JH - Junior High School
SH - Senior High School

of the total pupil enrollment and in nine the number was more than 70%. The ethnic distribution of the pupil population in the participating schools, for the most part, approximated the ethnic distribution of both the city's total population and the school district's total pupil population.

During the 1972-73 academic year 2,823 teachers were employed in the public schools of this city. Of that number 80% were Anglo, 16% Black, and 4% Mexican-American. These data, and a further breakdown according to school levels, are summarized in Table 3.

Research Subjects

Identifying Teacher Subjects

The process of identifying teachers who might be willing to participate in this research study began first with compiling a list of schools which had a sizeable Black-White racial mixture in both their pupil and teacher populations. This was achieved with the cooperation and assistance of the school district's Director of Educational Research and the Coordinator of Human Relations. The investigator then met with each of the respective school principals between October 24, 1973 and November 14, 1973. The purpose of these meetings were three-fold: to explain the nature of the research to be conducted; to obtain the principal's permission for his teachers to

TABLE 3

ETHNIC DISTRIBUTION OF ALL TEACHERS EMPLOYED IN THE
SCHOOL DISTRICT FOR THE 1972-73 ACADEMIC YEAR,
ACCORDING TO SCHOOL LEVELS

School Level	Teacher Ethnicity					
	White		Black		Mexican-American	
	Number	Percentage	Number	Percentage	Number	Percentage
Elementary	1111	76%	272	19%	73	5%
Junior High	474	80%	98	17%	17	3%
Senior High	681	88%	73	9%	24	3%
TOTALS	2266	80%	443	16%	114	4%

participate in the study; and to obtain a list of teachers who might be receptive to the idea and willing to participate in the study. All of the twenty principals initially contacted agreed to allow their schools to be used to collect data.

Once the principals gave their approval each of the teachers whose names had been suggested by their principals was visited by the principal investigator and two research assistants, and the research study was explained to them. They were simply told that we were interested in studying teacher-pupil, and pupil-pupil verbal interaction in recently desegregated classrooms. They were not informed that we would be observing teachers' interactions with specifically targeted Black and White pupils.

Several criteria were used to determine which of the prospective teacher subjects would qualify as participants in the study. First, their participation had to be voluntary. We felt this method of selection would be more likely to produce near normal classroom situations than if teachers were required to participate. A teacher volunteering to allow an outsider to observe her classes would probably not be unnerved by or resent the presence of an observer, and would proceed with normal classroom activities. Second, each teacher had to be presently teaching in a school which had a racially-mixed (Black-White) student population, and this racial mixture had to be reflected in their respective classroom enrollments. Third, only those

elementary teachers who were teaching the intermediate grades (4-6) were considered as possible candidates. Those employed in junior and senior high schools had to be teaching social studies. These grade levels and subject areas were chosen because the investigator felt they lend themselves more readily and naturally to more pupil-teacher interaction than some of the other subject areas and grade levels. Also, because of the precedents that have already been established in using these for interaction analysis studies (e.g., Flanders, 1970; Davis and Slobodian, 1967; Oliveria, 1970; Cornbleth, Davis and Button, 1972; Jeter, 1972).

Black and White teachers from all three school levels--elementary, junior high, and senior high schools--were selected to participate in the study for two reasons. First, in an effort to make the research population sample as representative of the total teacher population as possible. Second, because of specific research interests--that is, to determine if there are any significant differences between teachers' verbal behavior relative to school level and teacher ethnicity.

Description of the Teacher Subjects

Initially ninety-six teachers were contacted about participating in this research study. Only five chose not to participate. Seventeen of the ninety-one who agreed to participate could not because their classes were not sufficiently racially mixed to meet that criterion of the investigation.

Thus, a total of seventy-four teachers constituted the final research teacher population. Twenty of these teachers taught elementary school (grades 4-6), 32 taught junior high social studies (grades 7-9), and 22 taught senior high social studies (grades 10-12).

Table 4 presents a summary of these data. It also identifies the total number of teacher subjects, by race, per participating school, and the total number of Black and White targeted pupils in each of the participating schools. The number of teachers in each school ranged from two to eight, with the average being five. The number of targeted pupils ranged from 20 to 82, while the average per school was 43.

The sex and ethnic distribution of the total teacher subjects, according to school levels, participating in this investigation are reported in Table 5. Thirty-one, or 42%, of the 74 teachers were male and 48% female. Eighty-one percent were Anglo and 19% Black. The ethnic distribution among the research sample population was slightly higher than the Black-White teacher distribution for the entire school district (see Table 3). The greatest ethnic and sexual distribution were found among the teachers in the junior high school category. There were 50% males and 50% females, and 72% White and 28% Black teachers. The least amount of ethnic distribution was among the senior high teachers. Only one of the twenty-two teachers was Black. Fourteen were male and seven female. The elementary teachers included one

TABLE 4

THE DISTRIBUTION OF THE PUPIL AND TEACHER POPULATIONS
PARTICIPATING IN THE STUDY AMONG THE
FIFTEEN PARTICIPATING SCHOOLS

School	Level	Teacher Subjects			Targeted Pupils		
		Total	Black	White	Total	Black	White
1	EL	7	1	6	56	28	28
2	EL	5	2	3	48	24	24
3	EL	4	—	4	24	12	12
4	EL	4	1	3	48	24	24
5	JH	5	2	3	34	17	17
6	JH	3	1	2	30	15	15
7	JH	5	—	5	42	21	21
8	JH	6	2	4	60	30	30
9	JH	6	2	4	82	41	41
10	JH	5	2	3	20	10	10
11	JH	2	—	2	26	13	13
12	SH	8	—	8	60	30	30
13	SH	4	—	4	28	14	14
14	SH	6	1	5	70	35	35
15	SH	4	—	4	20	10	10
TOTALS		74	14	60	648	324	324

EL - Elementary school
JH - Junior high school
SH - Senior high school

TABLE 5

SEX AND ETHNIC DISTRIBUTION OF THE
TOTAL NUMBER OF TEACHER SUBJECTS,
ACCORDING TO SCHOOL LEVELS

School Level	Sex				Ethnicity			
	Male		Female		White		Black	
	Number	%	Number	%	Number	%	Number	%
Elementary	1	5%	19	95%	16	80%	4	20%
Junior High	16	50%	16	50%	23	72%	9	28%
Senior High	15	65%	8	35%	21	96%	1	4%
TOTALS	31	41%	44	59%	60	81%	14	19%

male and nineteen female, four Blacks and sixteen Whites.

Table 6 summarizes the background data of all the teacher subjects. Included are information on age, sex, ethnicity, grades taught, total number of years of teaching experience, years of teaching experience in the particular school in which they were employed at the time the research data were being conducted, and the highest degree held by each of the teachers.

The seventy-four teachers ranged in age from 23 years old to 59 years old, with the average being approximately 35.9 years. As a group, the junior high school teachers were younger than the others, with an average age of 33.9. The average ages for the elementary and senior high school teachers were 35.8 and 38 respectively. Some of the teachers had as few as one year of service while others had as many as 23 years of total teaching experience. Fifteen had taught for ten or more years. The average number of years of total teaching experience was 5.8. The junior high school teachers had more experience than the elementary and senior high teachers. The average years of total teaching experience for each of these school levels were 7.0, 5.1, and 4.7 respectively. The years of experience teaching in the school where they were employed at the time this research data were collected were somewhat lower than the total years of teaching experience. The range was from one to nineteen years of service, with an average of 3.7 years. The senior high school teachers had taught longer in the

TABLE 6
PERSONAL BACKGROUND DATA OF THE TEACHER SUBJECTS

Subject	Age	Sex	Ethnicity	School	Grade Taught	Total Years Teaching	Years Teaching In Present School	Degree
1	26	F	W	1	6	4	4	BA
2	56	F	W	1	6	12	1	BA
3	54	F	W	1	5	14	9	BS
4	44	F	W	1	6	5	5	MM
5	28	F	W	1	5	5	5	BS
6	43	F	W	1	5	9	1	BS
7	36	F	B	1	5	3	1	BA
8	33	F	W	2	5	2	1	MA
9	28	F	B	2	4	7	5	BS
10	27	F	W	2	6	5	4	BS
11	46	F	W	2	4	12	7	Med
12	34	F	B	2	4	5	3	BS
13	27	F	W	3	5&6	1	1	BS
14	25	F	W	3	6	1	1	BS
15	26	F	W	3	5	3	3	BS
16	29	F	W	3	4&5	1	1	BA
17	54	F	B	4	4	8	3	AB
18	27	F	W	4	4&5	1	1	BS
19	31	F	W	4	6	1	2	BS
20	32	F	W	4	5	2	2	BS
21	24	F	W	5	8	2	2	BS
22	32	F	B	5	7	5	1	BS
23	43	M	W	5	8	10	2	MA
24	38	M	B	5	8	14	4	BA
25	51	F	W	5	7	12	5	Med

TABLE 6
PERSONAL BACKGROUND DATA OF THE TEACHER SUBJECTS (cont'd.)

Subject	Age	Sex	Ethnicity	School	Grade Taught	Total Years Teaching	Years Teaching In Present School	Degree
26	26	M	W	6	8	1	1	BA
27	26	M	B	6	8	2	2	BS
28	27	M	W	6	7	3	1	BS
29	28	M	W	7	9	4	1	BS
30	52	F	W	7	7	4	4	BS
31	24	F	W	7	7	4	4	BA
32	46	F	W	7	8	2	2	BS
33	55	F	W	7	8	8	2	BA
34	25	M	W	7	9	2	2	BS
35	23	M	B	8	9	1	1	BS
36	47	F	W	8	9	1	1	BS
37	43	F	W	8	9	10	6	BS
38	26	F	W	8	7	6	6	BS
39	--	M	W	8	7	4	4	BA
40	25	M	B	8	9	8	1	BA
41	33	M	W	9	8	1	1	BA
42	23	M	W	9	8	6	6	BA
43	24	F	B	9	7	1	1	BS
44	36	F	W	9	7	2	2	BS
45	43	F	W	9	8	1	1	MA
46	23	F	B	9	8	1	1	MA
47	33	F	B	10	8	2	2	BS
48	32	F	W	10	5	5	5	BA
49	37	M	W	10	8	3	3	MEd
50	27	F	B	10	8	9	4	MA
			W	10	8	5	5	BA

TABLE 6

PERSONAL BACKGROUND DATA OF THE TEACHER SUBJECTS (cont'd.)

Subject	Age	Sex	Ethnicity	School	Grade Taught	Total Years Teaching	Years Teaching In Present School	Degree
51	29	M	W	11	8	2	2	BA
52	49	F	W	11	7	10	5	BS
53	35	M	W	12	11	8	2	Med
54	24	F	W	12	12	2	2	BS
55	47	M	W	12	12	19	19	MA
56	39	M	W	12	10	11	4	BS
57	37	M	W	12	12	5	5	BA
58	35	M	W	12	10	1	1	MS
59	59	F	W	12	11	15	8	BA
60	59	M	W	12	12	23	18	MA
61	29	M	W	13	10	5	3	BS
62	24	F	W	13	11&12	1	1	BS
63	52	M	W	13	11	5	5	BS
64	42	M	W	13	11	4	4	BS
65	28	F	W	14	12	5	4	BS
66	53	F	B	14	11	12	4	MA
67	44	M	W	14	12	13	8	BS
68	31	M	W	14	9&10	5	5	Med
69	42	M	W	14	11&12	4	4	BS
70	28	F	W	14	9	6	6	BS
71	47	F	W	15	9	7	7	BS
72	32	F	W	15	10	3	2	BA
73	25	M	W	15	12	1	1	BS
74	28	M	W	15	10	5	2	BS

particular schools (average 5.3 years) than either the elementary teachers (average 3 years) or the junior high school teachers (average 2.9 years). Fifteen of the seventy-four teachers held master's degrees. A greater percentage of these were held by the senior high teachers.

Grades 4 - 12 were represented by the seventy-four teachers involved in this research. An equally wide range of subject matter within the social studies curricula were also represented. Included were world geography, world history, American history, sociology, and American government.

Selecting Targeted Pupils

The research design used in this investigation required recording dyadic verbal contacts between teachers and individual pupils. Since the individual instead of the entire class was to be the unit of analysis some means of identifying targeted pupils had to be devised. Thus, each participating teacher was asked to supply the investigator with a seating chart of the group of pupils which was to be observed. On this chart the teachers gave the class time schedule, the pupils' names, sex, ethnic identity, and some indication of his expectations for pupil achievement. The instructions for rank ordering pupils on the basis of expected achievement were deliberately kept vague so as to encourage teachers to use complex, subjective criteria in making their decisions (Brophy and Good, 1969b), and to minimize the possibilities of their decisions being influenced

by the investigator. These measures, along with pupil sex and ethnicity, were used to match Black targeted pupils with White targeted pupils. Once the targeted pupils were identified by sex, achievement, and ethnicity each was assigned an identification number. These numbers were used to record the pupils' verbal classroom interactions with the teachers on the data collection instruments.

Descriptive data of the targeted pupils are reported in Table 7. These data include the total enrollment in each class observed and number of targeted pupils per class, according to ethnicity and sex. A total of 628 targeted pupils, (314 Blacks and 314 Whites), participated in the study. Fifty-two percent of the total number of targeted pupils were male and 48% were female. This percentage distribution was the same for both Blacks and Whites. The greatest concentration of pupils in any one category was found in the junior high schools. This was true because the racial mix between Black and White pupils for the entire school district was much greater in the junior high schools (grades 7-9) than in the elementary or senior high schools. While there were 147 Black and 147 White targeted pupils in the junior high school category, there were only 88 and 79 Black and White targeted pupils each in the elementary and senior high school categories respectively.

The number of targeted pupils per classroom ranged from two (one Black and one White) to twenty. The disproportionate or unequal number of Black and White pupils present

TABLE 7

ETHNIC AND SEXUAL DISTRIBUTION OF THE TARGETED
PUPIL POPULATION ENROLLED IN EACH OF THE
SEVENTY-FOUR CLASSROOMS OBSERVED IN THE STUDY

Class	Total Enrollment	Targeted Pupils			
		Black		White	
		Male	Female	Male	Female
1	24	2	3	2	3
2	25	2	2	2	2
3	27	2	3	2	3
4	26	2	1	2	1
5	27	2	1	2	1
6	28	2	3	2	3
7	25	2	1	2	1
8	24	0	2	0	2
9	30	5	1	5	1
10	24	3	2	3	2
11	28	3	3	3	3
12	30	3	2	3	2
13	23	2	2	2	2
14	26	0	3	2	1
15	27	2	2	2	2
16	26	-	1	0	1
17	27	4	3	4	3
18	29	1	1	1	1
19	29	1	5	1	5
20	30	3	6	3	6
21	25	4	1	3	2
22	22	2	2	2	2
23	28	3	0	3	0
24	28	1	2	1	2
25	27	1	1	1	1
26	21	3	1	2	2
27	29	5	1	4	2
28	25	3	2	3	2
29	20	5	2	5	2
30	25	2	1	2	1
31	17	2	2	2	2
32	30	2	3	2	3
33	26	1	1	1	1
34	32	0	5	0	5
35	31	4	5	4	5
36	21	2	5	2	5
37	28	2	1	2	1

TABLE 7 (cont'd.)

ETHNIC AND SEXUAL DISTRIBUTION OF THE TARGETED
PUPIL POPULATION ENROLLED IN EACH OF THE
SEVENTY-FOUR CLASSROOMS OBSERVED IN THE STUDY

Class	Total Enrollment	Targeted Pupils			
		Black		White	
		Male	Female	Male	Female
38	29	2	2	2	2
39	23	1	1	1	2
40	28	4	2	4	2
41	25	2	4	2	4
42	31	4	3	4	3
43	32	3	4	3	4
44	36	5	5	5	5
45	28	3	2	3	2
46	29	1	1	1	1
47	32	0	1	0	1
48	20	3	1	3	1
49	28	1	1	1	1
50	32	0	1	0	1
51	30	3	2	3	2
52	30	4	4	4	4
53	31	4	1	4	1
54	30	2	1	2	1
55	26	1	2	1	2
56	34	0	5	2	3
57	14	3	2	3	2
58	26	1	1	2	0
59	23	1	3	1	3
60	26	1	2	1	2
61	29	1	0	1	0
62	10	0	2	0	2
63	34	4	0	4	0
64	21	3	1	3	1
65	27	2	1	2	1
66	24	1	5	1	5
67	37	7	0	7	0
68	27	2	1	2	1
69	33	3	2	1	4
70	28	2	2	2	2
71	26	1	0	1	0
72	14	1	1	2	0
73	26	1	3	1	3
74	30	2	1	2	1
TOTALS	--	162	152	163	151

in any given class accounts for this wide range of targeted pupils across classes. In order to achieve an overall average of four pairs of targeted pupils, it was necessary to use all of the Black pupils in each of the given classrooms. Thus, selectivity in choice of targeted pupils among Blacks was non-existent. The overall average of targeted pupils per classroom was approximately eight. This means that an average of four Black and four White pupils were the focus of attention in each of the seventy-four classrooms.

The total pupil enrollment of each of the classes also tended to vary widely. The smallest class had an enrollment of 10, while the largest class included 37 pupils. The average pupil enrollment per class was 27.

Data Collection Process

Instruments

In hopes of achieving a more comprehensive view of pupil-teacher and pupil-pupil verbal interaction in desegregated classrooms, the investigator chose to use three different types of data collection instruments. One of these focused on observed teacher and pupil verbal behavior as documented by outside observers using a systematic coding device. Another emphasized teacher perceptions of pupil-teacher verbal interactions. The third was designed to obtain pupils' perceptions of pupil-teacher verbal interactions in desegregated classrooms. Furthermore, it seemed

empirically sound and theoretically valid to examine correlations between these three different approaches to analyzing pupil-teacher verbal classroom behaviors. A brief description of each of the specific instruments--their purposes and characteristics--used in the collection of data on pupil-teacher verbal behaviors, and for testing the validity of the major hypotheses underlying this investigation (see Chapter I) are explained below.

A. Teacher-Child Dyadic Interaction System

The Teacher-Child Dyadic Interaction System (DIS) provided the major source of data used in the research study. Created by Brophy and Good (1969b), this instrument was designed to study dyadic interactions between pupils and teachers. It was used initially to study pupil-teacher verbal behaviors in first grade reading and has been used since, sometimes as originally designed and other times with slight modifications, with teachers in other grades and subject areas (Cornbleth, Button and Davis, 1972; Jeter, 1972). Only those verbal interactions in which the teacher makes contact with a single individual pupil are coded in one of several categories. These are called dyadic interactions. The system allows for a comparison of teacher interactions with individual pupils and with groups of pupils, for maintaining the identity of the initiator and recipient of verbal interactions, and for identifying the sequential nature of the interactions. The different types of pupil-teacher dyadic interaction situations which are coded on the system are summarized briefly below. For a more explicit explanation of each of the categories and instructions on how to use the entire system, see Appendix A.

1. Response Opportunities, in which a single individual child makes public responses to questions asked by the teacher. These opportunities are deliberately created or afforded by the teacher and involve individual recognition of the child. Several different kinds of verbal possibilities are included in this category. Among them are direct questions, open questions, pupil call-out responses, discipline questions, reading turns, and recitation opportunities.

2. Levels of Questions, which refer to the kinds of responses demanded of the pupils. These include process, product, choice, and self-reference questions.
3. Quality of Pupil Response may be one of four kinds: correct, incomplete or partially correct, incorrect, or no response.
4. Teacher Feedback Responses are coded as terminal or sustaining. If the feedback is terminal, it may take the form of praise, no response, criticism, product feedback, or process responses. Sustaining feedback include repeating the question, rephrasing the question or giving clues to the answer, and asking a new question.
5. Work-Related Contacts are coded separately depending upon whether the teacher (teacher-afforded) or the pupil (child-created) is the initiator. These contacts have to do with seatwork and/or homework, and may take the form of praise, criticism, or process feedback.
6. Behavioral Contacts are coded whenever teachers single out individual pupils for discipline, or to praise or criticize their classroom behavior.
7. Procedural Contacts are related to classroom maintenance, such as giving instructions, running errands, and distributing equipment and supplies. These are coded as praise, warning or criticism.
8. Student-Student Interaction. This category was added to the original instrument to accommodate another aspect of the research question under investigation in this study. Interaction among pupils are coded according to who is the initiator and who is the recipient, and the nature of the interactions (positive, negative, neutral, non-verbal, and no responses).

Since this section of the instrument had not been used previously in research, some attempts were made to pilot test it before collecting data to be used in the actual study. It was piloted with college juniors majoring in education, who were enrolled in general secondary education methods courses.

A sample of the coding sheet which includes all of the above categories, and was used to collect observational data employing the Teacher-Child Dyadic Interaction System (DIS) is shown in Appendix B.

B. Teacher's Estimates of the Quality of Pupil-Teacher (TEQ)

The basic design of this instrument and its counterpart (Teacher's Estimates of the Extent of Pupil-Teacher Interaction) are similar to the scales used by Guilford (1954).

The TEQ, a copy of which appears in Appendix C, was used to obtain data on teachers' estimates of the quality of pupil participation in classroom discussions. Teachers were instructed to consider pupil responses to interaction opportunities provided by both teachers and fellow students, as well as their own initiations, in making their decisions about the quality of pupils' verbal behaviors. Lines one hundred centimeters in length were placed opposite the names of all the students enrolled in the classes observed. Teachers were then asked to rank each pupil's performance by placing a slash mark (/) at some point on the line between the two extreme ends marked "very low" and "very high".

C. Teacher's Estimates of the Extent of Pupil-Teacher Interactions (TEE)

This instrument was quite similar in design and purpose to the previous one. It was used to obtain teachers' estimates of the frequency of pupil participation in classroom discussions. The teachers were encouraged to consider pupil initiations, pupil responses to teacher and pupil-afforded interaction opportunities, and pupil participation in general instead of in specific, isolated instances, in making their decisions. The same instructions were given for indicating rank order of each pupil as were described above for the TEQ. See Appendix D for a copy of the TEE.

D. Student Sociometric Questionnaire (SSQ)

This instrument is not a sociometric test in the usual sense of the meaning of that research technique (e.g., Moreno, 1960; Jennings, 1948; Gronlund, 1959).

It does not attempt to determine the social structure present among pupils. Students were not asked to identify their preferred companions or those whom they would most like to associate in various particular social situations pertaining to classroom activities. Rather it is similar in design and content to instrumentation used by Davis and Slobodian (1967) in their study of first grade teachers' interactions with boys and girls in reading instruction as measured by observational data on pupil-teacher interactions, and pupil perceptions of teachers' behaviors. It was designed to obtain estimates of pupils' perceptions of classroom interactions between pupils and teachers in recently desegregated classrooms. All pupils enrolled in each of the classes observed and coded using the Teacher-Child Dyadic Interaction System were asked to identify those individuals to whom the several questions and/or statements posed by the SSQ were most applicable. The list of items consisted of nine questions and statements which suggested different kinds of opportunities afforded pupils for participation in classroom activities. They included instances of positive and negative participation, praise and criticism, quantity and quality participation, and procedural and work-related participation. For example: "Sit up and pay attention," "Who is the best student in class?," "Erase the chalkboard for me." Space was provided opposite each statement for the pupils to enter the names of their nominees. A complete list of the nine items on the SSQ and the instructions given to pupils on making their nominations appear in Appendix E.

Observers Training

Eight observers were involved in the collection of the observational data. Three of these were doctoral students at the University of Texas at Austin, and had had some teaching experience. The other five held B.A. degrees, two of which were in education. Each of the observers possessed some familiarity with classroom routines and interaction analysis techniques used to study teachers' classroom verbal behavior. At least six of them had participated as observers

in previous research studies using observational schedules similar to the Teacher-Child Dyadic Interaction System.

Prior to their entry into the classrooms each of the observers participated in a five-week training period during the months of November and December, 1972. Seven sessions and a total of twenty hours of training were conducted in the use of the Teacher-Child Dyadic Interaction System. These sessions were conducted by a consultant who had worked closely with the designers of the instrument, was highly skilled in the use of the DIS, and had had previous experience in training other coders how to use the instrument.

At the first training session each of the observers received a copy of Teacher-Child Dyadic Interaction System: A Manual for Coding Classroom Behavior (Brophy and Good, 1969b). They were asked to familiarize themselves with the contents, the categories of the observation system, and the coding sheets used to record the observational data. Preliminary questions concerning the nature of the research being conducted, the methodologies to be employed, the kinds of data to be collected, and the requirements and expectations of the observers--in terms of time commitments and work performances--were discussed. A second session was planning for the following week.

During the second training session the consultant reviewed the coding manual with the observers, explained the several coding categories, discussed their specific questions,

and demonstrated how the coding system operated. A short practice session followed. The observers coded a transcribed classroom conversation read by the consultant. Their performances were evaluated, and coding problems identified and explained. Additional reading assignments and practice drills were assigned for the coders to work on.

Subsequent training sessions were devoted to coding transcriptions of classroom conversations, coders writing scripts and exchanging them among themselves for coding practices, writing out questions and problems encountered in the practice drills, and coding audio and video tapes of classroom conversations. Three different video tapes, each increasingly more complex than the previous one in the pupil-teacher interactions portrayed, were used to allow the observers opportunities for practice in situations closely resembling actual classroom settings. They were also encouraged to practice using the DIS in the classes in which they were enrolled as students, or were responsible for teaching. After each of the practice sessions, the trainer provided the coders with immediate, realistic feedback on their performance and the progress of their mastery of the ing skills by examining their work with them and answering specific questions which arose during the drills.

After three weeks of these kinds of training activities, the coders selected partners to work with. The pairs were then assigned several elementary classes to observe and code. Each pair visited the classroom on two different

occasions for a period of 40 minutes. They were told to code teachers' verbal contacts with all the pupils in the classroom. During the first visit they were instructed to code 15 minutes, compare notes and discuss their progress among themselves, then return to the classroom and code 15 more minutes. On the second visit they coded the entire period without any consultation. Comments were reserved until after the coding session ended. The entire group of coders then met again with the consultant responsible for the training. They brought to this session the results of their classroom coding, and questions which had arisen in the process. Both were evaluated and discussed. Confusions over identifying categories of information were clarified, and the coding manual was reviewed once again. The coders also reviewed the coding sheets to be sure that each one was entering the same kind of descriptive information (e.g., date, attendance, time lapse of the coding period, subject discussed during coding, etc.) in the appropriate categories. Some agreements were made on standard format, and indicators that would be used by all observers to enter data on the coding sheets throughout the observation period. For example, how Black targeted pupils would be distinguished from White targeted pupils, what notations would be used to indicate teachers' verbal contacts with Black and White pupils.

At this point, the trainer felt it was time for the observers to proceed to establishing inter-coder reliability

by coding classes that were organized similarly to those participating in the study. Each pair of observers coded two one-hour class sessions. Only those verbal contacts teachers made with targeted pupils were recorded. The pair also coded independent of each other without comparing notes. Their results were then analyzed to determine the degree of reliability. Inter-coder reliability was established on the basis of percent agreement. This was determined by the ratio of exact agreement between coders to the combined total of exact agreements plus omissions (one observer coded and the other did not) plus disagreements (both observed coded but disagreed on the coding). If an interobserver agreement of at least .75 was not attained, the observers returned to the classrooms for another reliability check. Few of the observers attained .75 reliability on the initial attempt.

During the second week of January, 1973 the observers returned to the classrooms in pairs for another reliability check. Whereas on previous occasions they had visited a school which was not one of the final participants in the research study, the coders now observed and coded in one of the participating elementary schools. They were instructed on how to introduce themselves upon entering the classrooms. The observers had deliberately been kept largely uninformed about the particulars as to the rationale behind the kind of research data being collected. This action was taken to enhance scientific objectivity, to minimize the changes of the participating teachers being misinformed, to avoid misrepre-

senting the real intentions of the research, and to lessen the chances of biasing the data by what the observers considered appropriate teacher behavior instead of concentrating on merely recording observed teacher behavior. Two additional one-hour class periods were observed. By January 13, 1973 all eight of the observers had attained a reliability of .75 or more.

Throughout the duration of the collection of observational data the observers were in constant contact with a consultant. He examined the data sheets as they were compiled, and discussed problems and/or questions which occurred in the process of coding pupil-teacher verbal behavior in the classroom.

Data Collection

The principal investigator and the two research assistants met a second time with each of the seventy-four teachers in whose classes observational data would be collected. These meetings took place in November and December, 1972, and occurred prior to the time observers began to visit the classrooms. They explained who the observed would be, discussed the classroom visitations, and talked about the kinds of behavior (coding procedures) teachers could expect from the observers. The teachers and the researchers agreed that observer visitations would be arranged between the teacher and the observer, and that these would be planned at least one week in advance. We further agreed that the observers' visits would be planned to coincide, as near as possible,

with the "normal" instructional programs. Teachers were encouraged to "carry on business as usual" and not to plan anything special for the observers. No observational data were recorded on days when classroom activities deviated greatly from the norm, such as when tests were given, films shown, or part of the group of pupils was engaged in activities which required their absence from the classroom. Most visitations were subsequently scheduled to take place on Tuesdays, Wednesdays, and Thursdays.

The observations were also planned so as to avoid visiting the same classes two weeks consecutively. For example, if Class A were visited during the first week of the observation period, the observers would not return again to that class until the third week. We tried to avoid visiting the same teacher on two days consecutively. By using this kind of observation schedule, we hoped to be able to observe a wider variety of pupil-teacher verbal exchanges than we would have obtained if the observations occurred in a more restricted or compact time span.

Observational data using the Teacher-Child Dyadic Interaction System were collected over a ten-week period of time, beginning January 16, 1973 and lasting through March 30, 1973. Each of the seventy-four teachers was observed four times. Each observation was 40 - 55 minutes long (defined in Chapter I as a "project hour"). Consequently 300 "project hours" of observational data were collected. During the first and last five minutes of each observation

period the observers coded pupil-pupil interactions. The remainder of the hour was devoted to coding pupil-teacher verbal interactions. Only those instances of pupils and teachers making verbal contacts with the targeted pupils were entered on the coding sheets. Each targeted pupil was designated by an identification number, sex and ethnicity. For example, if all of an observer's entries on his coding sheets were labeled BM-1, BF-2, WM-3, or WF-4, this meant that there were four targeted pupils in that particular class. All entries appearing as 1's were attributable to the Black male targeted pupil, 2's to the Black female targeted pupil, 3's to the White male targeted pupil, and 4's to the White female targeted pupil.

After the observational data were completed, the TEQ, TEE, and the SSQ were administered. In some instances these were given to the teachers on the last day of coding observational data. They were completed at a later date and returned by mail to the investigator. In other cases, another visit to the classrooms was required. Here, the two research assistants delivered and collected the TEQ and TEE, and administered the SSQ personally.

The TEQ and the TEE required teachers to rank all pupils enrolled in the class observed according to the quality and quantity of their participation in classroom activities respectively. To facilitate this process the pupils' names had been typed on the forms used for ranking (see Appendices C and D) when the teachers received them. They merely had to

enter their evaluations of the pupils' participation by placing a slash mark (/) at some point on a continuum one hundred centimeters in length. The investigator then selected from among the total list of pupils only those scores the targeted pupils received for consideration in analyzing these data relative to testing the hypotheses about pupil-teacher verbal behaviors in desegregated classrooms.

The instructions for the SSQ were given orally. Pupils were asked to pretend they were in their social studies classes and answer the questions asked as they applied to that particular class (see Appendix E for the list of questions asked). In most cases, they were, in fact, in social studies classes at the time this instrument was administered. The "pretend clause" was included in the instructions as a protective measure in the possibility that the instrument was administered at a time other than when the pupils were normally engaged in social studies activities.

Treatment of Data

Separate summary tabulations were computed for each of the seventy-four teacher subjects on the DIS. Some of the columns on this instrument were combined to achieve a more logical and meaningful organization of the data. It became increasingly obvious, in the process of collecting observational data, that there was little consensus of agreement among coders on several of the coding columns as to whether they should be treated separately or combined. Among these were the praise and affirmation, and negation and criticism

columns under terminal feedback, and the several columns under work created and afforded, and procedural afforded category (refer to Appendices A and B for further clarification of these). These columns were adjusted by combining them to form a single category of data. It was also impossible for the observers to discriminate between the kind of verbal initiations and responses taking place among pupils since most of the exchanges were private. The coders were not often in a position to hear the interactions, and were frequently limited to merely noting that an interaction was initiated and a response did or did not follow, and guessing as to the form it took. Therefore, the separate columns under pupil-pupil initiations (see Appendix B) were adjusted by combining them into one category each for pupil-pupil initiated interaction and pupil-pupil recipient responses. Each of the adjusted columns or categories was summed separately for the four observation periods. The four scores per category were then combined to obtain one total score for each category for each of the teachers. Separate tabulations per column or category were computed for teachers' verbal contacts with both Black targeted pupils and White targeted pupils. Each column or data field on the DIS was assigned a numerical code for purposes of transferring raw data from the coding sheets to computer fortran sheets. Appendix F presents a summary of these column codes and what each represents.

From the simple category or column totals average total frequencies were computed and ratios derived by using more

than one category. By doing this distortions in the data due to the wide variance of the number of targeted pupils per classroom could be controlled somewhat. Also, compensations could be made for any missing data as might occur when one or more targeted pupils were absent.

In order to complete the computer analyses of these data the average frequencies for each category were identified as individual variables and assigned numerical indicators. A complete list of the variables derived from the DIS, and the other instruments as well, and the procedures used to obtain these percentage scores are explained in Appendix G.

Once the percentage scores were calculated, the data from the DIS were submitted to several statistical analyses, including preliminary analyses, and primary analyses needed to test the validity of the research hypotheses. Program INTRAR (Veldman, 1970) was administered to determine the degree of agreement or stability of the variables on the DIS over the duration of the four observation periods. Program BLOCOR (Veldman, 1970) was used to determine whether the observed verbal interactions between Black teachers and White teachers with Black targeted pupils (BTP) and White targeted pupils (WTP) were positively correlated.

Several statistical tests for significance of variance between Black teachers and White teachers verbal interactions with BTP and WTP were conducted. Separate analyses of variance were conducted for White teachers in each of the

three school levels (elementary, junior high, and senior high), and for the total number of White teachers across school levels. Similar analyses were conducted for Black teachers in the elementary and junior high school categories, and for the total number of Black teachers across school levels. A combination of 2×2 (number of teachers $\times$ pupil ethnicity, and teacher ethnicity $\times$ pupil ethnicity) and 3×2 (school level $\times$ teacher ethnicity $\times$ pupil ethnicity) variance designs were employed to complete these statistical analyses.

Teachers' estimates of pupils' participation in classroom interactions, as indicated on the TEQ and the TEE, were quantified prior to being statistically analyzed. A centimeter ruler was used to measure the point on the continuum from "very low" to "very high" where the teachers had indicated their evaluations of pupil participation in classroom activities. Quantified scores were calculated only for the BTP's and WTP's in the respective classrooms. These evaluations were summed separately for BTP and WTP. Therefore, after the scores for each of the individual pupils were calculated these were combined so that each teacher had two scores, one for BTP and one for WTP each on the TEQ and TEE. These scores correspond to variable 30 and 31 respectively as listed in Appendix G. Black targeted pupils' and White targeted pupils' scores were analyzed separately for significance of variance according to the number of teachers within the three school level

categories, and for the total number of teachers participating in the study.

Pupil estimates of pupil-teacher classroom interactions, as measured by the SSQ, were also tested statistically for significance of variance. Each of the nine items on this instrument was treated as a separate variable. Two sets of scores were computed for each of the nine variables: one for the number of nominations or votes each targeted pupil received from his classmates (SSQ_1); and one for the number of targeted pupils nominated for each of the items on this instrument (SSQ_2). Separate scores were tabulated for BTP and WTP. First, the nominations each targeted pupil received were totalled. The individual scores were then combined to achieve a total score for each of the two groups of targeted pupils. Percentage scores were derived by dividing the total number of nominations per group of targeted pupils by the total number of possible nominations in each classroom. Thus, the SSQ netted 36 scores or variables for each of the participating teachers: one per item for the number of nominations BTP and WTP received; and one per item for the number of BTP and WTP's nominated. These scores on the SSQ correspond to variables 32-49 as listed in Appendix G.

Data from all the instruments used in this study--the DIS, TEQ, TEE, and SSQ--were analyzed for significance of variance using a combination of programs ANOVAR and AV2BLW (Veldman, 1970). A combination of two 2 x 2 (teacher x pupil ethnicity, and teacher ethnicity x pupil ethnicity) and 3 x 2 (school level x teacher ethnicity x pupil ethnicity)

analysis of variance designs were employed to complete the statistical analyses of the data. Correlational analyses, employing program BLOCOR (Veldman, 1970) were also computed to determine if there were any statistically significant correlations between teachers and pupils' scores on the several instruments. All analyses were computed on the DC 6600 Computer at The University of Texas at Austin.

Limitations of the Study

This study is exploratory in nature and represents an initial foray in a dimension of educational research yet largely unexplored. However, it is not without some limitations, several of which should be noted here.

Because it is exploratory the results of the study must be viewed as tentative and interpreted cautiously. Much more research in the area of pupil-teacher verbal behavior in desegregated classrooms is needed to validate the findings as being suggestive of prescriptive data which can be used in planning pupil learning experiences, teacher education programs, and remedial social action strategies to reduce racial tensions in desegregated school situations.

Several conditions peculiar to the setting in which the investigation took place may have influenced the data collected. Desegregation was a relatively new experience for the school district. It may very well be that both pupils and teachers' verbal behaviors were affected by the new surroundings and circumstances. The decision to participate

in the study was made voluntarily by the teacher subjects. A question that must be considered in interpreting the data and the results of the study is whether these teachers held certain notions or ideas about educational research, desegregation, ethnically different pupils, and teaching and learning which caused them to behave significantly different from other teachers. Thus, the sample population may not have been representative of teachers in the school district as a whole, which, in turn, could have biased the data and skewed the results.

The generality of the research findings are limited largely to the study population. Anyone using these findings must understand that these data are most meaningful when they are interpreted within the context of the setting out of which they emerged. There may be some opportunities to generalize beyond this particular study. However, extreme caution should be exercised and care taken to insure that the new population approximate the study's sample population, in description and setting, as nearly as possible. The hypotheses of the present study must be further tested before reliable inferences can be made regarding their applicability to a wide range of other school situations.

A real limitation of the present study was the small number of Black teachers involved. Any comparisons between Black teachers' verbal classroom behaviors and that of White teachers must be viewed as only tentative. The number of Black elementary and junior high school teachers was so small as to suspect the scientific validity of any comparative analyses made between Black teachers' and White teachers' verbal

behaviors with Black and White pupils. No such comparisons could even be attempted at the senior high school level. Thus, the investigator strongly advises against anyone using the data and the results reported herein to generalize about Black teachers' verbal behavior in desegregated classrooms.

No attempts were made to control several classroom variables which could have influenced the nature of the kind of interactions existing between pupils and teachers. Neither the total class size nor the ethnic composition of the classes observed were rigorously controlled. The ethnic distribution of the total pupil population of the participating schools made this unfeasible. The resulting wide variance in class sizes (10 to 38) and number of targeted pupils per class (2 to 20) may have caused the results of the study to be skewed. There is reason to believe that the total number of pupils enrolled in a given class may affect how teachers behave toward the group and toward individual pupils. For example, 3 Black pupils in a class with 27 teachers may have fewer opportunities to interact with teachers and fellow classmates than 5 Blacks in a class with 9 Whites. Nor were any attempts made to control for differences in teaching styles. How each participating teacher interpreted the concept of teaching and engaged in the act of teaching may have affected the kinds of dyadic verbal interactions operant in the respective classrooms. Systematic analyses of these possible effects were beyond the scope of the present study. However, there is little doubt that comparable class sizes with a more balanced black-white

pupil distribution would have improved the research design considerably.

Although the investigator attempted to keep sex constant in pairing targeted pupils, the sexual composition of some of the classrooms did not allow for this to happen. In a few instances boys had to be paired with girls. Previous research seems to indicate that teachers' dyadic verbal behaviors are not significantly different for boys than for girls (Brophy and Good, 1969; Jeter, 1972) but the findings are not conclusive.

The presence of outsiders in the classroom may have had a sufficient effect on teachers, pupils, and the classroom climate as to stifle the "naturalness" of pupil-teacher interaction. A further possible limitation may be seen in the fact that the observers' visits to the classroom were neither random nor unplanned. Teachers and observers conferred in arranging the times when observers would visit the classroom to code pupil-teacher dyadic interactions. Therefore, the pupil-teacher interactions observed may have been somewhat "staged."

The process used to obtain teacher expectations of pupil achievement may be considered as another limitation, even though similar procedures have been used in previous research (Brophy-Good, 1969; Cornbleth, Button and Davis, 1972; Jeter, 1972). The criteria to be used for identifying teacher expectations were left almost entirely to the subjective evaluation of the teachers, and as such they tended

to vary greatly. In some instances previous grades were the governing criterion, while in others it was individual scores on standardized and/or teacher-made tests, classroom participation, or performance over relatively short periods of time as opposed to overall average performance. In making their evaluations the teachers may have been influenced to rate a pupil with "average" ability as a "high achiever" because he performed to the maximum of his potential or was an "overachiever" ("Johnny is rather slow but he tries hard and does exceptionally well for his ability"). Conversely, they may have evaluated a student with greater academic potential as being only average because he did not perform to the maximum of his potential. It is therefore conceivable that some pupils may have been unevenly matched, and if it is indeed true that teachers interact more with pupils with "high expectations" than with "low achievers" as research indicates (Rosenthal and Jacobson, 1968; Brophy and Good, 1969; Jeter, 1972), then the interactional patterns across targeted pupils could have been skewed.

All of these limitations are real in the sense that they could have had a significant effect upon the kind of data that were collected on pupil-teacher dyadic interactions in desegregated classrooms. The results of this research study must, of necessity, be interpreted in light of these possible limitations.

Chapter Summary

This chapter has described the procedures employed to

collect and analyze data on pupil-teacher dyadic verbal interactions in desegregated classrooms. Included were discussions of the selection and description of the research site, the targeted teacher and pupil populations, the training of observers, observation schedules, and the instruments observers used in the process of collecting observational data. Other instruments used to obtain teachers' and pupils' perceptions of classroom interactions were identified, and explained, as were the statistical programs used to analyze the data and test the validity of the research hypotheses.

Results of the analysis of variance and the correlational analyses to which the research data were submitted are reported in Chapters III and IV respectively.

CHAPTER III

RESULTS: ANALYSES OF VARIANCE

Introduction

The results of the statistical analyses of the data obtained from the research investigation of pupil-teacher verbal interaction in desegregated social studies classes are reported in two major parts. The first part, or Chapter III, is devoted to the presentation of the results of the analyses of variance of obtained data on teachers' observed verbal behaviors, teachers' estimates, and pupils' perceptions of classroom interactions. The results of the correlational analyses form part two of the data analyses, and are reported in Chapter IV. Each of the chapters first presents the results of the various analyses, and then the results of testing the nine major research hypotheses, along with each of its supportive sub-hypotheses.

This chapter presents summaries of multiple analyses of variance of Black (BT) and White teachers' (WT) dyadic verbal interactions with Black (BTP) and White targeted pupils (WTP) in the same desegregated classes, as measured by the four instruments employed in the data collection process. Differences in teachers' mean scores on the

Teacher-Child Dyadic Interaction System (DIS), Teacher's Estimates of the Extent of Pupil-Teacher Interaction (TEE), Teacher's Estimates of the Quality of Pupil-Teacher Interaction (TEQ), and the Student Sociometric Questionnaire (SSQ) were analyzed separately for each of the three school levels (elementary, junior high, and senior high), according to both pupil and teacher ethnicity. Two sets of data resulted from the SSQ.

Three different sets of analyses of variance data are reported for each of the four instruments. The first set reports results from five single or one-way analyses of variance, one each for Black and White elementary, Black and White junior high, and White senior high teachers. The number of Black senior high teachers was too small to be treated as a separate group. The second set of data involves 2×2 (teacher ethnicity $\times$ pupil ethnicity) analyses of variance of elementary and junior high teachers' verbal interactions with Black and White targeted pupils. The third set of data presents the outcomes of the three-way (school level $\times$ teacher ethnicity $\times$ pupil ethnicity) analyses of variance. Each set of these data also include analyses of teachers' verbal behaviors in desegregated classrooms as evidenced by observational data, teachers' estimates, and pupils' perceptions.

The primary objective of the research investigation pursued in this project was to determine if Black teachers

(total $n = 13$) and White teachers (total $n = 61$), in elementary, junior high, and senior high school social studies, interacted differentially with Black pupils and White pupils. This objective was expressly explored in terms of specific hypotheses relative to the verbal classroom behaviors of elementary Black teachers ($n = 4$), elementary White teachers ($n = 16$), junior high Black teachers ($n = 9$), junior high White teachers ($n = 23$), and senior high White teachers ($n = 22$). The findings which result from the variance and correlational analyses were used to test each of the hypotheses as they are outlined in Chapter I.

Analysis of Variance of Obtained Data on the Teacher-Child Dyadic Interaction System

Elementary Teachers

All analyses of variance herein reported were computed statistically on the CDC 6600 Computer at The University of Texas at Austin, using programs ANOVAR and AV2B1W (EDSTAT-V, Veldman, 1970). Tables 8-16 and Figures 2-18 summarize the analyses of teachers' observed verbal behaviors with Black targeted pupils (BTP) and White targeted pupils (WTP) as measured by the Teacher-Child Dyadic Interaction System (DIS) (Prophy and Good, 1969b).

Table 8 presents mean scores and standard deviation for

TABLE 8

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES OF
ELEMENTARY TEACHERS ON THE VARIABLES OF DIS
(n=20)

Variables	Black Teachers (n=20)			White Teachers (n=16)			Total Teachers (n=20)		
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$
1	.00	.00	.00	.01	.02	.00	.01	.02	.00
2	.80	.16	.62	.38	.32	.40	.46	.34	.45
3	.13	.17	.28	.30	.26	.48	.27	.25	.44
4	.07	.13	.10	.12	.17	.06	.11	.16	.07
5	.00	.00	.13	.05	.11	.08	.04	.10	.09
6	.71	.29	.62	.51	.36	.50	.55	.36	.52
7	.04	.08	.06	.18	.30	.30	.16	.27	.25
8	.24	.31	.19	.05	.12	.06	.10	.19	.08
9	.62	.10	.82	.51	.33	.81	.53	.30	.81
10	.07	.08	.04	.06	.07	.05	.06	.08	.05
11	.31	.12	.13	.24	.25	.08	.25	.23	.09
12	.78	.14	.83	.56	.35	.81	.61	.33	.81
13	.05	.06	.09	.20	.26	.09	.17	.24	.09
14	.15	.10	.09	.05	.07	.04	.07	.09	.05
15	.31	.21	.38	.33	.37	.24	.32	.34	.27

TABLE 8 (continued)

Variables	Black Teachers (n=20)				White Teachers (n=16)				Total Teachers (n=20)			
	X _{BTP}	SD	X _{WTP}	SD	X _{BTP}	SD	X _{WTP}	SD	X _{BTP}	SD	X _{WTP}	SD
16	.00	.00	.21	.36	.08	.25	.03	.12	.06	.22	.07	.21
17	.69	.21	.17	.20	.21	.31	.23	.35	.30	.35	.22	.32
18	.00	.00	.00	.00	.08	.13	.00	.00	.01	.12	.00	.00
19	.25	.43	.25	.43	.07	.24	.03	.11	.11	.30	.07	.24
20	.50	.50	.00	.00	.29	.41	.18	.30	.33	.44	.14	.28
21	.00	.00	.25	.43	.20	.35	.10	.19	.11	.32	.13	.26
22	.57	.31	.67	.30	.63	.25	.74	.29	.62	.27	.73	.29
23	.43	.31	.33	.30	.30	.21	.26	.29	.33	.24	.27	.29
24	.78	.20	.66	.29	.25	.28	.57	.41	.36	.34	.59	.39
25	.22	.20	.34	.29	.62	.35	.30	.37	.54	.37	.31	.35
26	.07	.09	.16	.20	.03	.10	.00	.00	.03	.10	.03	.11
27	.40	.37	.49	.35	.48	.48	.60	.47	.46	.46	.58	.46
28	.54	.07	.63	.07	.57	.08	.61	.12	.57	.08	.61	.11
29	.46	.07	.37	.07	.43	.08	.39	.12	.43	.08	.39	.11

Black, White, and total elementary teachers for the twenty-nine variables on the DIS. The results of the analyses of variance of these mean scores are summarized in Table 9.

Significant differences between Black teachers' verbal behavior with BTP and WTP were apparent on six of the twenty-nine variables (see Appendices A and F for identification and explanations of these variables) on this instrument. This number of significant differences is itself significant at the $p < .001$ level (Sakoda, Cohen, and Beall, 1954).^{*} Three of the differences exceeded the $p < .10$ level of significance and three the $p < .05$ level. Black teachers made significantly more open verbal contacts with WTP than with BTP; WTP gave significantly more correct responses than BTP to questions posed by Black teachers; and WTP initiated more pupil-pupil contacts in classes taught by Black teachers. Comparatively, BTP gave more wrong responses, received more "ask others" terminal feedback, and were the recipients of more pupil-pupil interactions in elementary social studies classes taught by Black teachers.

With respect to elementary White teachers' verbal interactions with BTP and WTP significant differences

^{*}The procedures used to determine if the number of obtained significant statistics is itself significant in all of the statistical analyses reported in this chapter are based on the methods suggested by Sakoda, J. M., Cohen, B. H., and Beall, G., "Test of Significance for a Series of Statistical Tests," Psychological Bulletin, 51 (March, 1954), pp. 172-175.

TABLE 9

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY TEACHERS' MEAN SCORES ON THE
TEACHER-CHILD DYADIC INTERACTION SYSTEM BY TEACHER ETHNICITY

Variables	Black Teachers				White Teachers			
	MS	Error	F-Ratio	P	MS	Error	F-Ratio	P
1	x-x	x-x	x-x	x-x	.0008	.0002	3.10*	.096
2	.0663	.0314	2.11		.0065	.0575	.11	
3	.0468	.0068	6.86*	.078	.2400	.0429	5.59**	.030
4	.0017	.0308	.06		.0357	.0132	2.72	
5	.0312	.0127	2.46		.0059	.0129	.45	
6	.0164	.0075	2.19		.0011	.0579	.02	
7	.0005	.0023	.22		.1088	.0452	2.41	
8	.0051	.0183	.28		.0004	.0017	.22	
9	.0831	.0125	6.66*	.081	.6941	.0728	3.53***	.008
10	.0019	.0009	2.18		.0006	.0032	.20	
11	.0599	.0077	7.81*	.067	.2064	.0378	5.45**	.032
12	.0042	.0120	.35		.4743	.0840	5.65**	.030
13	.0015	.0054	.28		.0879	.0434	2.03	
14	.0107	.0029	3.64		.0015	.0020	.73	

* = .10

** = .05

*** = .01

x-x No valid analysis possible due to missing data

TABLE 9 (continued)

Variables	Black Teachers			White Teachers		
	MS	Error	F-Ratio	P	MS	Error
15	.0078	.0911	.09		.0567	.0749
16	.0868	.0868	1.00		.0193	.0431
17	.5425	.0286	18.94**	.021	.0035	.1000
18	x-x	x-x	x-x	x-x	.0450	.0095
19	.0000	.3333	0.00		.0141	.0091
20	.5000	.1667	3.00		.1041	.1465
21	.1250	.1250	1.00		.0898	.0555
22	.0207	.0253	.82		.0151	.0271
23	.0207	.0253	.82		.8170	.1007
24	.0253	.0295	.86		.8170	.1007
25	.0253	.0295	.86		.8170	.1007
26	.0142	.0099	1.44		.0030	.0050
27	.0151	.0151	2.97		.1335	.1112
28	.0170	.0015	11.01**	.044	.0093	.0139
29	.0170	.0015	11.01**	.044	.0093	.0139

* = .10

** = .05

*** = .01

x-x No valid analysis possible due to missing data

occurred on eight of the twenty-nine variables on the DIS. This number is itself significant at $p < .001$. The five verbal contacts significantly greater for BTP than WTP were discipline contacts at the $p < .10$ level, wrong responses to teacher questions and call-out responses, both significant at $p < .05$, and pupil initiated procedural contacts and teacher-afforded procedural contacts significant at $p < .01$. In addition to giving more correct responses ($p < .01$), elementary WTP received more open response opportunities ($p < .05$) and significantly more positive feedback ($p < .05$) than BTP from elementary White teachers.

On the basis of these data major hypothesis 1, 2 and 5 (see Chapter I) must be rejected for elementary teachers since significant differences in both Black and White teachers' verbal behavior between BTP and WTP did occur. The sub-hypotheses relative to individual specific kinds of verbal behavior are tested separately later in this chapter.

Junior High Teachers

Tables 10 and 11 report junior high school teachers' mean scores and standard deviations for the DIS and the results of the analyses of variance of these scores. Significant differences on five of the twenty-nine variables occurred for White teachers' verbal interactions with BTP and WTP. According to Sakoda, Cohen and Beall (1954) this number of significant statistics for a population

TABLE 10

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES OF
JUNIOR HIGH SCHOOL TEACHERS ON THE VARIABLES OF DIS
(n=32)

Variables	Black Teachers (n=9)				White Teachers (n=23)				Total Teachers (N=32)			
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD
1	.04	.07	.00	.00	.00	.01	.00	.00	.01	.04	.00	.00
2	.64	.36	.53	.33	.25	.30	.19	.24	.36	.36	.29	.31
3	.22	.31	.36	.29	.29	.38	.38	.36	.27	.37	.37	.34
4	.10	.14	.11	.15	.20	.26	.34	.32	.17	.24	.28	.31
5	.09	.15	.06	.07	.03	.07	.09	.12	.05	.10	.08	.11
6	.72	.21	.76	.27	.63	.40	.73	.33	.66	.37	.74	.31
7	.04	.06	.03	.05	.02	.05	.06	.21	.02	.05	.05	.18
8	.14	.07	.15	.22	.06	.09	.03	.12	.08	.13	.07	.16
9	.46	.33	.56	.32	.49	.44	.75	.28	.48	.34	.70	.31
10	.05	.09	.07	.07	.09	.15	.09	.14	.08	.13	.08	.12
11	.49	.33	.37	.36	.16	.21	.08	.11	.26	.29	.16	.25
12	.41	.29	.43	.31	.58	.38	.74	.34	.54	.36	.66	.36
13	.55	.31	.37	.33	.10	.16	.08	.16	.23	.30	.16	.28
14	.04	.04	.19	.34	.10	.15	.09	.21	.08	.13	.12	.26
15	.34	.30	.30	.37	.33	.43	.34	.41	.33	.40	.33	.40

TABLE 10 (continued)

Variables	Black Teachers (n=9)				White Teachers (n=23)				Total Teachers (n=32)			
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD
16	.00	.00	.15	.28	.01	.03	.05	.21	.00	.02	.08	.23
17	.55	.34	.53	.44	.19	.35	.12	.26	.29	.39	.23	.27
18	.00	.00	.01	.04	.12	.28	.06	.15	.09	.25	.05	.13
19	x-x	x-x	x-x	x-x	.06	.15	.02	.10	.04	.13	.02	.09
20	.14	.31	.15	.32	.13	.30	.12	.30	.13	.31	.13	.30
21	.42	.47	.18	.36	.29	.42	.33	.44	.33	.44	.29	.42
22	.61	.39	.75	.37	.48	.35	.69	.32	.52	.37	.71	.33
23	.28	.33	.14	.26	.34	.32	.22	.24	.32	.32	.20	.25
24	.35	.40	.40	.37	.41	.38	.37	.38	.40	.39	.38	.37
25	.20	.31	.49	.38	.50	.39	.54	.39	.42	.39	.58	.39
26	x-x	x-x	x-x	x-x	x-x	x-x	x-x	x-x	x-x	x-x	x-x	x-x
27	.41	.47	.50	.47	.57	.44	.48	.48	.52	.45	.49	.48
28	.50	.12.	.54	.11	.54	.09	.52	.12	.53	.10	.52	.12
29	.50	.12	.46	.11	.46	.09	.48	.12	.47	.10	.48	.12

TABLE 11

SUMMARY OF ANALYSIS OF VARIANCE OF JUNIOR HIGH TEACHERS' MEAN SCORES ON THE
TEACHER-CHILD DYADIC INTERACTION SYSTEM (DIS) BY TEACHER ETHNICITY

Variables	Black Teachers				White Teachers			
	MS	Error	F-Ratio	P	MS	Error	F-Ratio	P
1	.0076	.0025	3.02		.0000	.0000	1.00	
2	.0480	.0627	.77		.0334	.0600	.56	
3	.0844	.0178	4.74*	.059	.0901	.0677	1.33	
4	.0002	.0189	.01		.2277	.0588	3.87*	.059
5	.0040	.0171	.23		.0419	.0087	4.82**	.037
6	.0053	.0247	.21		.1051	.0998	1.05	
7	.0003	.0001	3.00		.0182	.0231	.79	
8	.0001	.0117	.01		.0055	.0047	1.17	
9	.0435	.0687	.63		.7844	.0807	9.72***	.005
10	.0027	.0043	.61		.0001	.0232	.01	
11	.0677	.0726	.93		.0805	.0244	3.29*	.080
12	.0029	.0383	.08		.2965	.1098	2.70	
13	.1433	.1464	.98		.0056	.0121	.46	

* = .10

** = .05

*** = .01

TABLE 11 (continued)

Variables	Black Teachers				White Teachers			
	MS	Error	F-Ratio	P	MS	Error	F-Ratio	P
14	.1051	.0742	1.42		.0008	.0335	.02	
15	.0054	.1403	.04		.0007	.1501	.00	
16	.0995	.0429	2.32		.0216	.0225	.96	
17	.0014	.1611	.01		.0634	.0547	1.16	
18	.0009	.0009	1.00		.0466	.0278	1.68	
19	x-x	x-x	x-x		.0156	.0189	.83	
20	.0004	.0108	.04		.0006	.0877	.01	
21	.2411	.1057	2.28		.0224	.1677	.13	
22	.0906	.0658	1.38		.5014	.1081	4.64**	.040
23	.0906	.0658	1.38		.1708	.0653	2.62	
24	.0092	.0998	.09		.0187	.0836	.22	
25	.3736	.1167	3.20		.0187	.0836	.22	
26	x-x	x-x	x-x		x-x	x-x	x-x	
27	.0343	.1414	.24		.0788	.1005	.78	
28	.0049	.0250	.20		.0049	.0149	.33	
29	.0049	.0250	.20		.0049	.0149	.33	

* = .10

** = .05

*** = .01

x-x No valid analysis possible due to missing data

whose total $n = 23$ is itself significant at $p < .01$. Black targeted pupils gave significant more wrong responses ($p < .01$) to questions asked by White teachers, while White targeted pupils gave significantly more correct responses, were asked more process questions, engaged in more call-out contacts, and initiated more work contacts with junior high White teachers. These differences were statistically significant at $p < .01$, $.05$, $.10$, and $.05$ levels respectively. These data led to the rejection of Hypothesis 1 relative to the differential verbal interactions of junior high White teachers with BTP and WTP.

Significant differences in junior high Black teachers' verbal behavior with BTP and WTP occurred on only one of the twenty-nine variables of the Teacher-Child Dyadic Interaction System. White pupils received more open public response opportunities than did Black pupils. This difference was statistically significant at $p < .10$. Therefore, null Hypothesis 2 concerning differences in Black teachers' verbal interactions with Black and White pupils was accepted for the junior high Black teachers. Specific verbal behaviors are tested separately later in the chapter.

Senior High Teachers

Comparatively, senior high White teachers' verbal interactions with BTP and WTP, in terms of open contacts, correct responses, and wrong responses, were not significantly different. However, significant differences did occur on

choice questions, product questions, process feedback, and new questions sustaining feedback. While BTP received more choice questions ($p < .05$), WTP were asked more product questions ($p < .05$), received more process feedback ($p < .10$) and more new questions ($p < .10$). The mean scores and standard deviation scores from which these findings are derived are reported in Table 12. Table 13 summarizes the analyses of variance of White senior high teachers' verbal interactions with Black and White pupils. According to Sakoda, Cohen and Beall (1954) four significant statistics out of a total possible number of twenty-five for a research population of $n = 22$ is itself significant at $p < .05$. Therefore H_{01} (see Chapter I) was rejected with respect to high school White teachers' verbal behaviors with Black and White pupils.

Two-Way Analyses of Variance

Of 87 possible two-way interaction analyses of variance of elementary Black and White teachers with BTP and WTP as recorded on the variables of the Teacher-Child Dyadic Interaction System, nineteen were significant. This number is itself significant at $p < .001$ for a population sample whose total $n = 20$. Eight of the interactions were significant at $p < .10$, eight at $p < .05$, and three at $p < .01$. These data are detailed in Table 14. Black elementary teachers behaved significantly different from White teachers in creating more direct public response

TABLE 12

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION
 SCORES OF HIGH SCHOOL TEACHERS BY TARGETED
 PUPILS ON THE VARIABLES OF THE DIS
 (n=22)

Variables	Black Targeted Pupils		White Targeted Pupils	
	$\bar{X}$	SD	$\bar{X}$	SD
1	.01	.04	.00	.00
2	.32	.35	.44	.35
3	.15	.25	.19	.24
4	.28	.34	.27	.34
5	.12	.24	.08	.14
6	.48	.40	.68	.37
7	.06	.13	.03	.10
8	.10	.29	.11	.26
9	.60	.37	.64	.32
10	.04	.08	.06	.12
11	.12	.17	.20	.24
12	.61	.38	.69	.34
13	.09	.17	.17	.26
14	.06	.10	.05	.09
15	.21	.31	.41	.37
16	.04	.13	.09	.16
17	.27	.35	.22	.34
18	.01	.04	.04	.13
19	.05	.21	.07	.23
20	.12	.30	.06	.22
21	.12	.30	.29	.43
22	.56	.44	.60	.42
23	.25	.37	.26	.36

TABLE 12 (continued)

Variables	Black Targeted Pupils		White Targeted Pupils	
	$\bar{X}$	SD	$\bar{X}$	SD
24	.37	.40	.44	.44
25	.39	.40	.27	.39
26	.00	.00	.00	.00
27	.10	.29	.19	.39
28	.52	.14	.49	.19
29	.43	.13	.47	.19

TABLE 13

SUMMARY OF ANALYSIS OF VARIANCE OF SENIOR HIGH TEACHERS'
 MEAN SCORES ON THE TEACHER-CHILD DYADIC INTERACTION
SYSTEM (DIS) BY TEACHER ETHNICITY

Variables	MS	Error	F-Ratio	P
1	.0007	.0007	1.00	
2	.1683	.0628	2.68	
3	.0166	.0237	.70	
4	.0025	.0312	.08	
5	.0195	.0211	.92	
6	.4197	.0604	6.95**	.015
7	.0078	.0013	5.91**	.023
8	.0018	.0538	.03	
9	.0124	.0800	.16	
10	.0067	.0116	.58	
11	.0725	.0454	1.60	
12	.0664	.0780	.85	
13	.0600	.0523	1.15	
14	.0016	.0107	.15	
15	.4533	.1255	3.61*	.069
16	.0251	.0173	1.45	
17	.0258	.1230	.21	
18	.0101	.0093	1.08	
19	.0051	.0051	1.00	
20	.0031	.0650	.48	
21	.3227	.1077	3.00*	.016
22	.0148	.1713	.09	
23	.0011	.1137	.01	

TABLE 13 (continued)

Variables	MS	Error	F-Ratio	P
24	.0465	.1001	.46	
25	.1368	.1599	.86	
26	x-x	x-x	x-x	
27	.0952	.0952	1.00	
28	.0150	.0162	.93	
29	.0150	.0162	.93	

x-x No valid analysis possible due to missing data

* = .10

** = .05

*** = .01

TABLE 14

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY TEACHERS' MEAN SCORES ON THE TEACHER-CHILD DYADIC INTERACTION SYSTEM BY TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group Pupil Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
1	.0002	.74		.0006	2.98*	.098	.0002	.74	
2	.6447	4.12*	.055	.0019	.04		.0709	1.33	
3	.2200	1.67		.2862	7.75***	.012	.0007	.02	
4	.0000	.00		.0227	1.41		.0147	.91	
5	.0002	.00		.0218	1.69		.0153	1.19	
6	.1719	.69		.0076	.15		.0099	.20	
7	.2333	1.21		.0930	2.45		.0163	.43	
8	.1589	3.27*	.084	.0024	.56		.0030	.68	
9	.0254	.27		.7640	12.17***	.003	.0132	.21	
10	.0001	.01		.0018	.61		.0008	.27	
11	.0215	.55		.2661	8.11***	.010	.0002	.00	
12	.0925	.83		.4160	5.78**	.026	.0624	.87	
13	.0353	.93		.0615	1.66		.6279	.75	

* = .10

** = .05

*** = .01

TABLE 14 (cont'd.)

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group Pupil Ethnic Group		
	MS		P	MS		F	MS		P
	MS	F	P	MS	F	P	MS	F	P
14	.0400	4.12*	.055	.0065	2.98*	.098	.0057	2.59	
15	.0233	.11		.0301	.39		.0344	.44	
16	.0150	.33		.0001	.00		.1060	2.11	
17	.2824	2.30		.0766	.87		.4694	5.33**	.031
18	.0090	1.14		.0360	4.55**	.045	.0090	1.14	
19	.2549	3.04*	.095	.0113	.18		.0028	.05	
20	.0015	.01		.3612	2.42		.2402	1.61	
21	.0048	.04		.0069	.10		.1909	2.76	
22	.0270	.22		.1105	2.19		.0000	.00	
23	.0593	.47		.0304	1.13		.0055	.20	
24	.6074	3.83*	.063	.5437	6.12**	.022	.2986	3.36*	.080
25	.2145	1.23		.5437	6.12**	.022	.2986	3.36*	.080
26	.0695	5.17**	.034	.0001	.02		.0191	3.28*	.084
27	.0555	.15		.1452	1.56		.0029	.03	
28	.0003	.03		.0209	1.77		.0054	.46	
29	.0003	.03		.0209	1.77		.0054	.46	

* = .10
 ** = .05
 *** = .01

opportunities, asking more self-reference questions, giving more negative feedback, repeating questions more often, engaging in more positive behavior, and receiving more pupil-created procedural contacts. These disparities are depicted visually in Figure 2. On the basis of these findings major Hypothesis 3 relative to the lack of significant differences in the verbal behavior of Black and White teachers' verbal behavior, independent of pupil ethnicity, must be rejected for elementary teachers.

The differential interaction of Black pupils and White pupils with elementary teachers, independent of teacher ethnicity, were statistically significant on nine of the twenty-nine categories of the DIS. These disparities in pupil behavior correspond closely with those of teachers although the two were not interactional or contingent upon each other. As Figure 3 indicates BTP participated in more discipline contacts, wrong responses, negative feedback, call-out contacts, and teacher-afforded procedural contacts. White targeted pupils, on the other hand, engaged in more open contacts, gave more correct responses, received more positive feedback, and initiated more pupil-pupil contacts.

The two-way interactional analysis of variability for elementary Black and White teachers with BTP and WTP revealed four significant differences: Black teachers provided more "ask others terminal feedback" to BTP than to other pupils ($p < .05$); WTP initiated more procedural

Figure 2

Significant Differences in Amount of Contact (2), Self-Reference Questions (8), Negative Feedback (14), Repeated Questions (19), Procedural Contacts (24), and Objective Behavior (26), Measures of Pupil-Teacher Interaction in Elementary Schools, According to Teacher Ethnicity

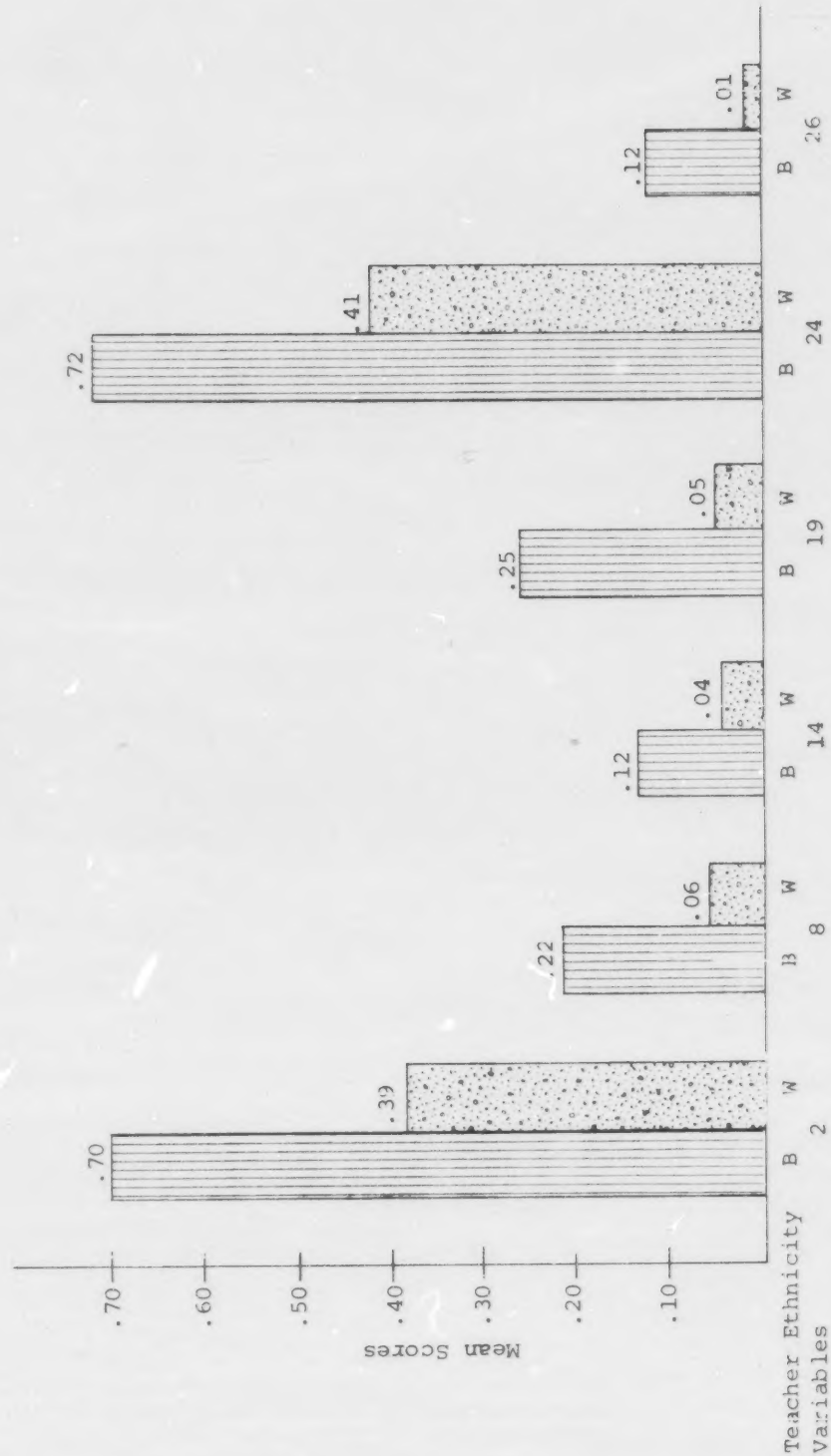
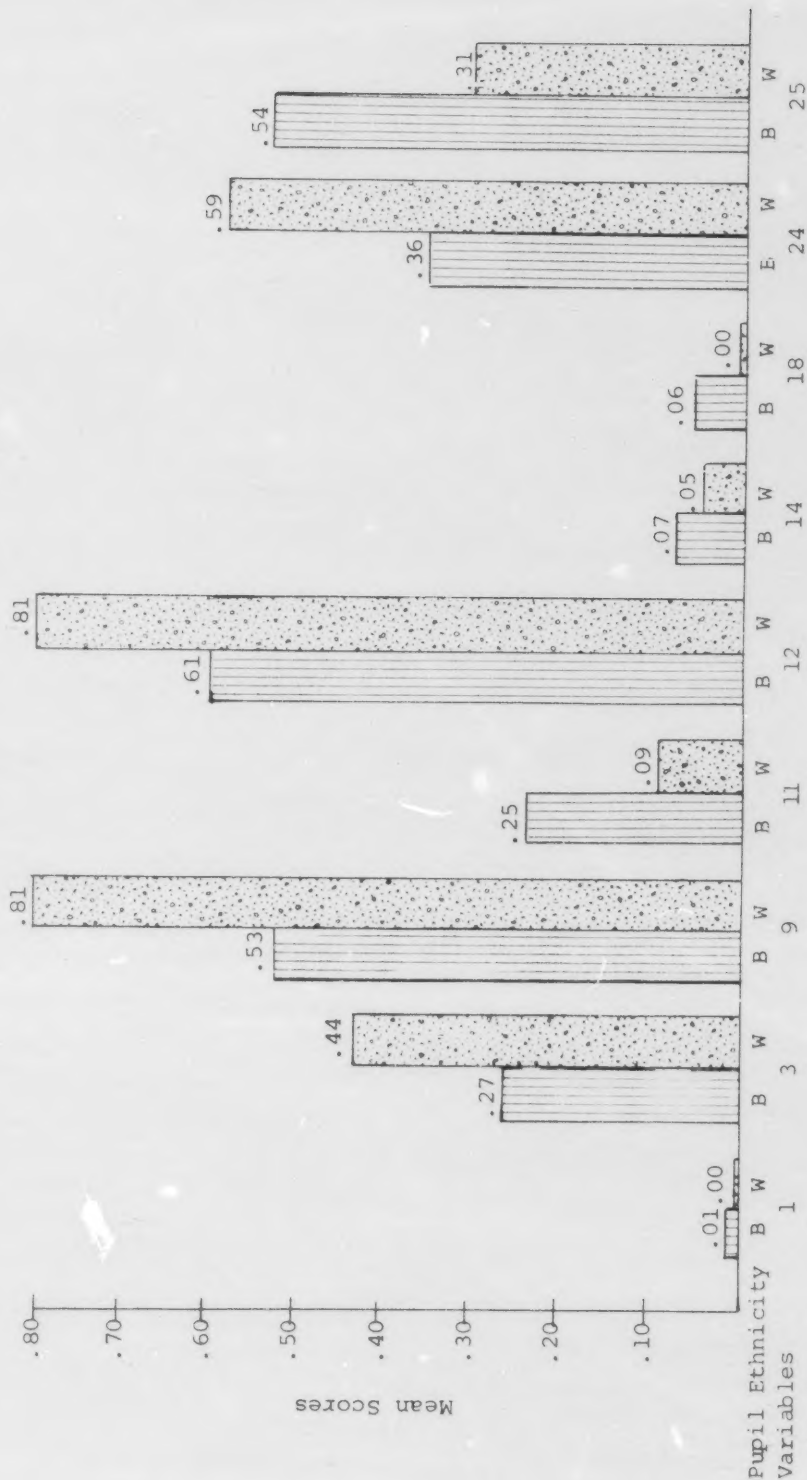


Figure 3

Significant Differences in Amount of Discipline Contacts (1), Open Contacts (3), Correct Responses (9), Wrong Responses (11), Positive Feedback (12), Negative Feedback (14), Call-out Feedback (18), Pupil-Initiated (24), and Teacher-Afforded (25) Procedural Contacts Measures of Pupil-Teacher Interaction in Elementary School According to Pupil Ethnicity



contacts with White teachers than with Black teachers ($p < .10$); White teachers created more teacher-afforded procedural contacts with BTP than WTP ($p < .10$); and WTP displayed more negative behavior with Black teachers than all other pupils did with other teachers ($p < .10$). These interactional disparities are described graphically in Figure 4.

Analysis of variance of the two-way interactional verbal behavior of junior high school teachers with Black and White pupils revealed seventeen significant differences. This number of significant statistics is itself significant at $p < .001$. Eight of these differences occurred in the consideration of teacher behavior independent of pupil ethnicity; eight were revealed when pupil behavior was considered independent of teacher ethnicity; and one two-way interaction was apparent.

Differential patterns similar to those already noted for elementary teachers were observed among junior high teachers and pupils. According to the data presented in Table 15 and Figure 5 the occurrence of discipline contacts ($p < .01$), direct contacts ($p < .01$), self-reference questions ($p < .10$), wrong answers ($p < .01$), no feedback responses ($p < .01$), and "ask others" feedback ($p < .01$) verbal interactions were significantly greater for Black teachers than White teachers. These differences applied when teacher behavior was considered independent of pupil ethnicity. Only two instances occurred wherein the observed

Figure 4

Average Amount of Pupil-Teachers Verbal Behavior in the Elementary Schools
As Measured by the Interaction Between Pupil Ethnicity and Teacher
Ethnicity on Ask Other Feedback (17), Pupil-Initiated (24) and
Teacher Afforded (26) Procedural Contacts, and Positive
Teacher Behavior (26) Variables of the Teacher-
Child Dyadic Interaction System

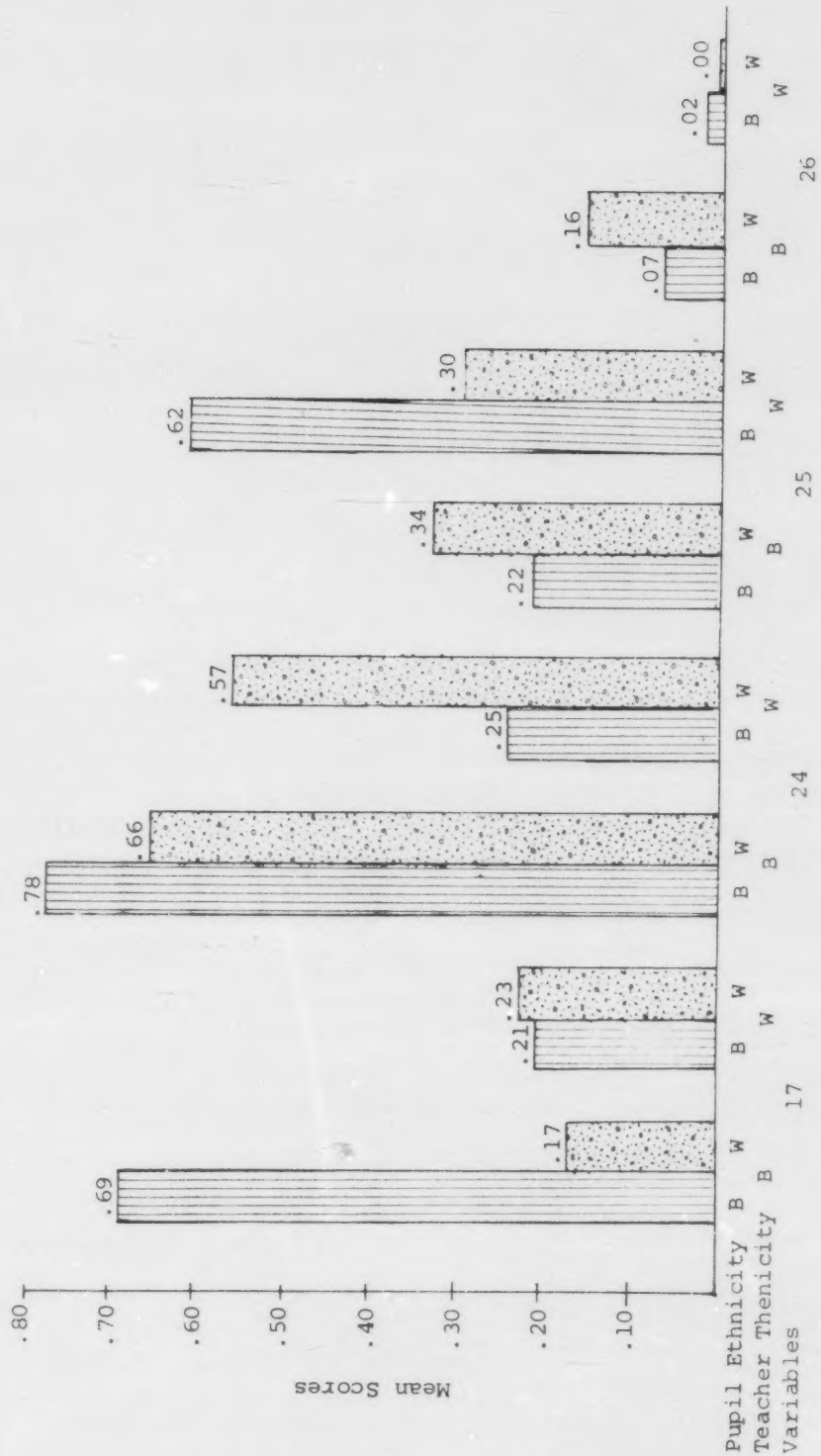


TABLE 15
SUMMARY OF ANALYSIS OF VARIANCE OF JUNIOR HIGH TEACHERS' MEAN SCORES ON THE TEACHER-CHILD DYADIC INTERACTION SYSTEM BY TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group Pupil Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
1	.0051	7.42***	.010	.0025	3.67**	.062	.0051	7.42***	.010
2	1.7161	13.84***	.001	.0735	1.21	.	.0079	.13	
3	.0212	.10		.1669	3.07*	.087	.0076	.14	
4	.3724	3.87*	.056	.1705	3.54*	.067	.0575	1.19	
5	.0016	.12		.0196	1.80		.0262	2.40	
6	.0453	.28		.0983	1.23		.0122	.15	
7	.0001	.00		.0110	.65		.0075	.44	
8	.1325	3.84*	.057	.0034	.53		.0021	.32	
9	.1560	1.13		.7422	9.58***	.004	.0857	1.11	
10	.0110	.66		.0003	.02		.0025	.14	
11	1.2664	16.78***	.001	.1432	3.84*	.056	.0049	.13	
12	.7433	4.69**	.036	.2405	2.65		.0589	.65	
13	1.7682	32.53***	.000	.0698	1.46		.0791	1.65	

* = .10
** = .05
*** = .01

TABLE 15 (continued)

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group Pupil Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
14	.0064	.15		.0221	.50		.0838	1.89	
15	.0030	.02		.0003	.00		.0058	.04	
16	.0287	1.04		.0851	3.05*	.088	.0359	1.29	
17	1.9497	12.45***	.002	.0543	.65		.0104	.13	
18	.0921	1.59		.0278	1.35		.0198	.96	
19	.0209	1.76		.0112	.81		.0044	.32	
20	.0036	.03		.0001	.00		.0009	.01	
21	.0014	.01		.0178	.12		.2457	1.63	
22	.1125	.69		.5775	5.97**	.020	.0145	.15	
23	.0707	.64		.2600	3.98**	.053	.0013	.02	
24	.0040	.02		.0042	.05		.0237	.27	
25	.2242	1.78		.1937	2.10		.1986	2.15	
26	x-x	x-x		x-x	x-x		x-x	x-x	
27	.0588	.17		.0195	.18		.0935	.84	
28	.0018	.20		.0005	.03		.0092	.53	
29	.0018	.20		.0005	.03		.0092	.53	

* = .10

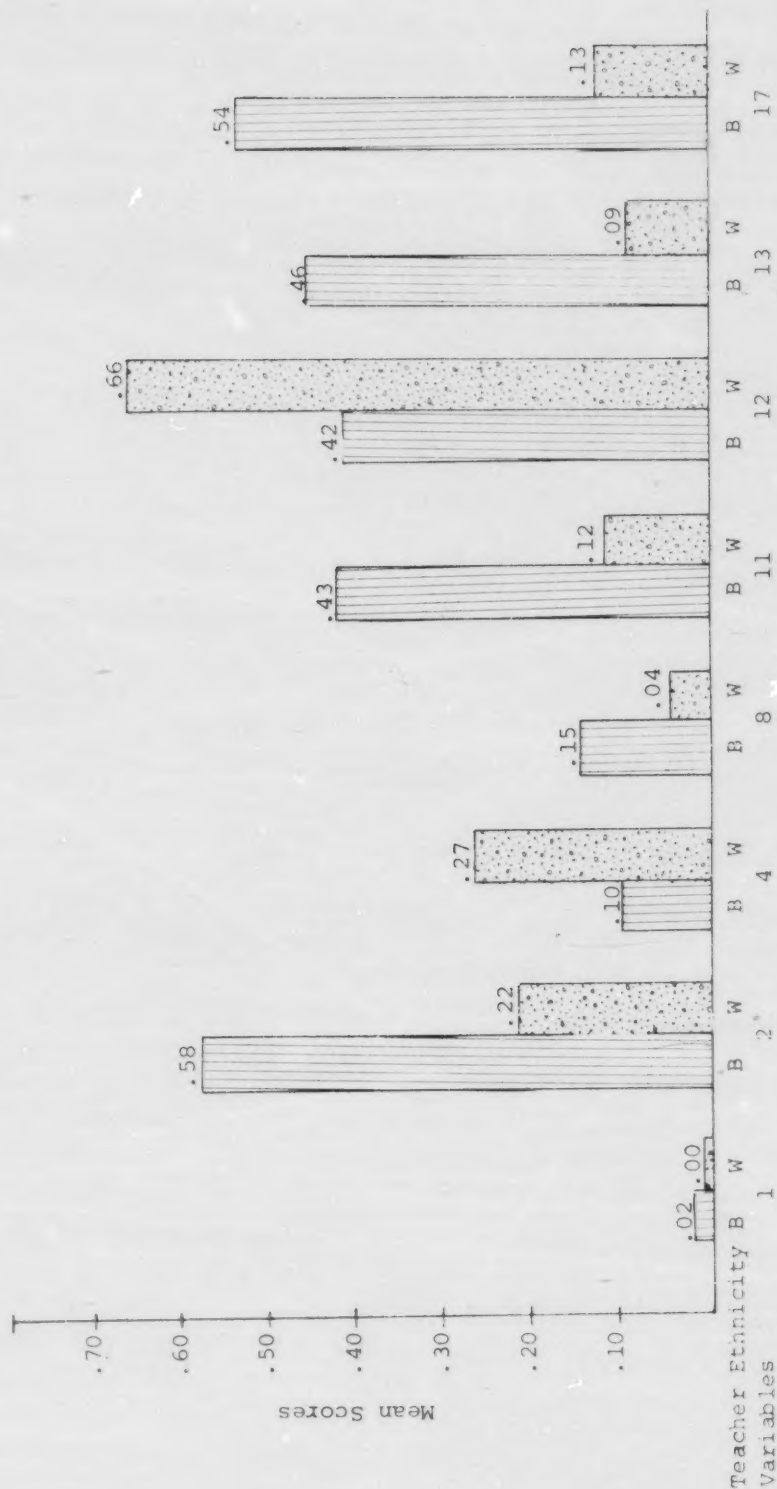
** = .05

*** = .01

x-x No valid analysis possible due to missing data

Figure 5

Significant Differences in Amounts of Discipline (1), Direct (2), Call-Out (4), Self-Reference Questions (8), Wrong Answers, (11), Positive Feedback (12), No Feedback (13), and Ask Others (17), Contact Measures of Pupil-Teachers Interaction in Junior High Schools, According to Teacher Ethnicity



disparities favored White teachers. These were in the "call-out response" category ($p < .10$) and positive feedback ($p < .01$). As a result of these observed differences major Hypothesis 4 was rejected for junior high school teachers.

Figure 6 shows that Black pupils in junior high schools gave more wrong answers ($p < .10$), received significantly more discipline contacts ($p < .10$) and teacher-afforded work contacts ($p < .05$) than White pupils. By comparison White pupils engaged in more open contacts ($p < .10$), call-out contacts ($p < .10$), correct answers ($p < .01$), "give answer" feedback ($p < .10$), and initiated a greater number of work contacts with teachers ($p < .05$).

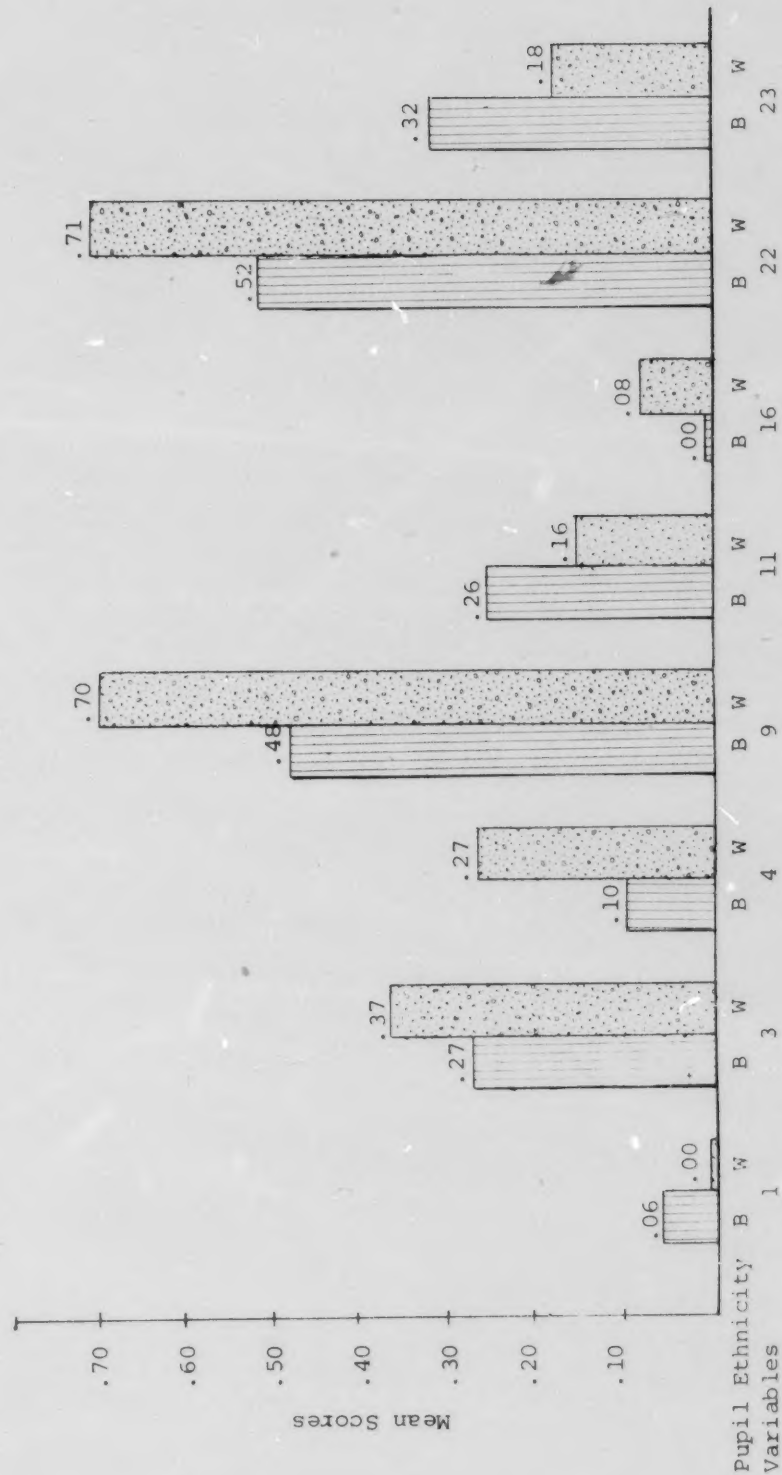
Only one significant two-way interaction occurred among junior high school teachers and pupils. Not only did Black teachers engage in more discipline contact than other teachers ($p < .01$), and that BTP were subjected to more discipline than WTP ($p < .01$), but that the number of discipline contacts directed toward BTP by Black teachers far exceeded all other discipline contacts ($p < .01$).

Three-Way Analyses of Variance

Three-way interaction analyses of variance (school level x teacher ethnicity x pupil ethnicity) were computed for elementary and junior high school teachers only. This statistical treatment was not applicable to the data collected on senior high school teachers' verbal behavior

Figure 6

Significant Differences of Discipline (1), Open (3), Call-Out (4), Correct Answers (9), Wrong Answers (11), Give Answers Feedback (16), Pupil-Initiated (22), and Teacher Afforded (23) Work Contacts as Measures of Pupil-Teacher Interaction in Junior High Schools, According to Pupil Ethnicity



since there were no Black teachers in that category. Analyses of elementary and junior high teachers' verbal behavior with Black and White pupils in desegregated classrooms revealed significant differences on twenty of the twenty-nine variables on the Teacher-Child Dyadic Interaction System. The actual number of obtained significant differences was 32 out of a possible total of 145. This number of significant results is itself significant at $p < .001$. Eight of these differences were observed in the comparisons between elementary and junior high teachers' verbal behavior, independent of teacher ethnicity. Six of the significant differences were evident in the interactional analyses between teacher ethnicity and school level. Ten differences were due to pupil ethnicity when this variable was considered independent of school level and teacher ethnicity. The interaction between school level and pupil ethnicity accounted for two of the significant differences, and significant triple interactions between school level, teacher ethnicity, and pupil ethnicity were observed on six of the variables. These data and the concomitant distributions are summarized in Tables 16 and 17.

In comparing the verbal behaviors of elementary teachers with junior high teachers the results of the analyses of variance indicated that elementary teachers made significantly more direct contacts ($p < .10$) with targeted pupils, gave more positive feedback ($p < .05$),

TABLE 16

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION
 SCORES OF TOTAL TEACHER SUBJECTS BY TARGETED
 PUPILS ON THE VARIABLES OF THE DIS
 (n=74)

Variables	Black Targeted Pupils		White Targeted Pupils	
	$\bar{X}$	SD	$\bar{X}$	SD
1	.01	.03	.00	.00
2	.38	.36	.38	.33
3	.24	.31	.34	.32
4	.18	.26	.22	.29
5	.07	.16	.08	.16
6	.52	.38	.67	.36
7	.07	.17	.10	.25
8	.09	.20	.08	.19
9	.53	.34	.71	.29
10	.06	.11	.07	.11
11	.22	.25	.16	.22
12	.58	.36	.71	.33
13	.17	.26	.15	.26
14	.07	.11	.08	.19
15	.29	.26	.34	.39
16	.03	.14	.08	.21
17	.30	.37	.23	.35
18	.06	.18	.03	.11
19	.06	.21	.05	.19
20	.18	.36	.11	.27
21	.23	.39	.25	.39
22	.55	.37	.67	.36
23	.31	.33	.25	.31

TABLE 16 (continued)

Variables	Black Targeted Pupils		White Targeted Pupils	
	$\bar{X}$	SD	$\bar{X}$	SD
24	.38	.38	.45	.41
25	.44	.39	.40	.40
26	.01	.05	.01	.06
27	.38	.45	.42	.47
28	.54	.11	.54	.15
29	.45	.11	.45	.15

TABLE 17

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY AND JUNIOR HIGH TEACHERS' MEAN SCORES ON THE TEACHER-CHILD DYADIC INTERACTION SYSTEM (DIS) BY SCHOOL LEVEL, TEACHER ETHNICITY, AND PUPIL ETHNICITY

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
1	A	.001	2.61		C	.003	5.77**	.019
	B	.001	1.89		AC	.001	2.26	
	AB	.003	5.17**	.028	BC	.001	1.89	
2	A	.365	2.68*	.104	ABC	.003	5.17**	.026
	B	1.989	14.61***	.001	C	.103	1.79	
	AB	.009	.07		AC	.000	.00	
3	A	.004	.03		BC	.072	1.25	
	B	.219	1.21		ABC	.028	.48	
	AB	.090	.50		C	.326	6.81***	.012
					AC	.011	.23	
					BC	.001	.02	
					ABC	.005	.11	

* = .10
 ** = .05
 *** = .01

A = School Level
 B = Teacher Ethnicity
 C = Pupil Ethnicity

TABLE 17 (continued)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
4	A	.162	2.34		C	.013	.36	
	B	.126	1.84		AC	.037	1.02	
	AB	.120	1.74		BC	.002	.04	
5					ABC	.056	1.56	
	A	.000	.01		C	.036	3.06*	.083
	B	.000	.01		AC	.016	1.35	
	AB	.001	.04		BC	.000	.01	
6					ABC	.038	3.24*	.075
	A	.263	1.35		C	.001	.01	
	B	.213	1.09		AC	.058	.84	
	AB	.047	.24		BC	.021	.31	
7					ABC	.000	.01	
	A	.206	2.44		C	.029	1.16	
	B	.152	1.80		AC	.011	.44	
	AB	.160	1.90		BC	.024	.96	
					ABC	.003	.12	

* = .10

** = .05

*** = .01

A = School Level

B = Teacher Ethnicity

C = Pupil Ethnicity

TABLE 17 (continued)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
8	A	.030	.77		C	.006	1.05	
	B	.287	7.21***	.010	AC	.002	.28	
	AB	.014	.34		BC	.000	.06	
9					ABC	.005	.88	
	A	.279	2.31		C	.788	10.95***	.002
	B	.009	.08		AC	.021	.29	
	AB	.028	1.06		BC	.006	.96	
10					ABC	.072	.08	
	A	.005	.32		C	.000	.03	
	B	.003	.19		AC	.004	.31	
	AB	.005	.32		BC	.000	.00	
11					ABC	.003	.21	
	A	.129	2.08		C	.312	8.76***	.005
	B	.589	9.51***	.004	AC	.017	.49	
	AB	.278	4.49**	.037	BC	.003	.08	
					ABC	.001	.02	

* = .10

** = .05

*** = .01

A = School Level

B = Teacher Ethnicity

C = Pupil Ethnicity

TABLE 17 (continued)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
12	A	.717	5.12**	.027	C	.242	2.89*	.092
	B	.061	.44		AC	.011	.14	
	AB	.555	3.96**	.050	BC	.118	1.41	
13	A	.493	10.24***	.003	ABC	.004	.05	
	B	.374	7.76***	.008	C	.083	1.89	
	AB	.844	17.52***	.000	AC	.016	.37	
14	A	.008	.26		BC	.001	.02	
	B	.044	1.43		ABC	.089	2.03	
	AB	.014	.45		C	.004	.13	
15	A	.004	.02		AC	.057	2.01	
	B	.009	.04		BC	.011	.39	
	AB	.024	.12		ABC	.052	1.82	
					C	.003	.02	
					AC	.000	.00	
					BC	.012	.10	
					ABC	.038	.32	

* = .10 A = School Level
 ** = .05 B = Teacher Ethnicity
 *** = .01 C = Pupil Ethnicity

TABLE 17 (continued)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
16	A	.015	.42		C	.132	3.63*	.060
	B	.039	1.13		AC	.001	.03	
	AB	.000	.00		BC	.141	3.88**	.052
17					ABC	.025	.68	
	A	.011	.08		C	.375	4.41**	.039
	B	1.533	10.64***	.002	AC	.178	2.10	
	AB	.136	.94		BC	.252	2.96*	.088
18					ABC	.383	4.51**	.037
	A	.016	.41		C	.017	1.04	
	B	.064	1.62		AC	.001	.05	
	AB	.009	.24		BC	.025	1.58	
19					ABC	.000	.00	
	A	.290	7.46***	.009	C	.007	.21	
	B	.109	2.80*	.097	AC	.000	.00	
	AB	.246	6.33**	.015	BC	.007	.21	
					ABC	.000	.00	

* = .10

A = School Level

** = .05

B = Teacher Ethnicity

*** = .01

C = Pupil Ethnicity

TABLE 17 (continued)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
20	A	.197	1.49		C	.399	4.07**	.047
	E	.004	.03		AC	.404	4.12**	.045
	AB	.000	.00		BC	.147	1.50	
21	A	.480	2.55		ABC	.175	1.78	
	B	.006	.03		C	.001	.01	
	AB	.001	.01		AC	.125	1.04	
					BC	.005	.04	
22	A	.005	.04		ABC	.189	3.43*	.067
	B	.003	.02		C	.334	4.20**	.043
	AB	.107	.73		AC	.022	.28	
					BC	.005	.07	
23	A	.131	1.13		ABC	.004	.05	
	B	.002	.02		C	.179	3.52*	.064
	AB	.124	1.06		AC	.015	.30	
					BC	.007	.13	
					ABC	.002	.03	

* = .10

** = .05

*** = .01

A = School Level

B = Teacher Ethnicity

C = Pupil Ethnicity

TABLE 17 (continued)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
24	A	.563	2.83*	.095	C	.048	.55	
	B	.361	1.82		AC	.044	.50	
	AB	.454	2.28		BC	.129	1.46	
25	A	.065	.32		ABC	.287	3.25*	.074
	B	.544	2.71	.102	C	.016	.17	
	AB	.000	.00		AC	.307	3.37*	.069
26	A	.071	14.18***	.001	BC	.495	5.43**	.023
	B	.046	9.23***	.004	ABC	.036	.40	
	AB	.046	9.23***	.004	C	.004	1.72	
27	A	.000	.00		AC	.004	1.72	
	B	.110	.31		BC	.013	5.86**	.018
	AB	.003	.36		ABC	.013	5.86**	.018
	A	.000	.00		C	.052	.50	
	B	.110	.31		AC	.048	.46	
	AB	.003	.36		BC	.017	.17	
					ABC	.048	.46	

* = .10

A = School Level

** = .05

B = Teacher Ethnicity

*** = .01

C = Pupil Ethnicity

TABLE 17 (continued)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
28	A	.066	7.40***	.009	C	.021	1.34	
	B	.001	.16		AC	.014	.90	
	AB	.000	.01		BC	.013	.87	
29	A	.066	7.40***	.009	ABC	.000	.00	
	B	.001	.16		C	.021	1.33	
	AB	.000	.01		AC	.014	.90	
					BC	.013	.87	
					ABC	.000	.00	

* = .10

** = .05

*** = .01

A = School Level

B = Teacher Ethnicity

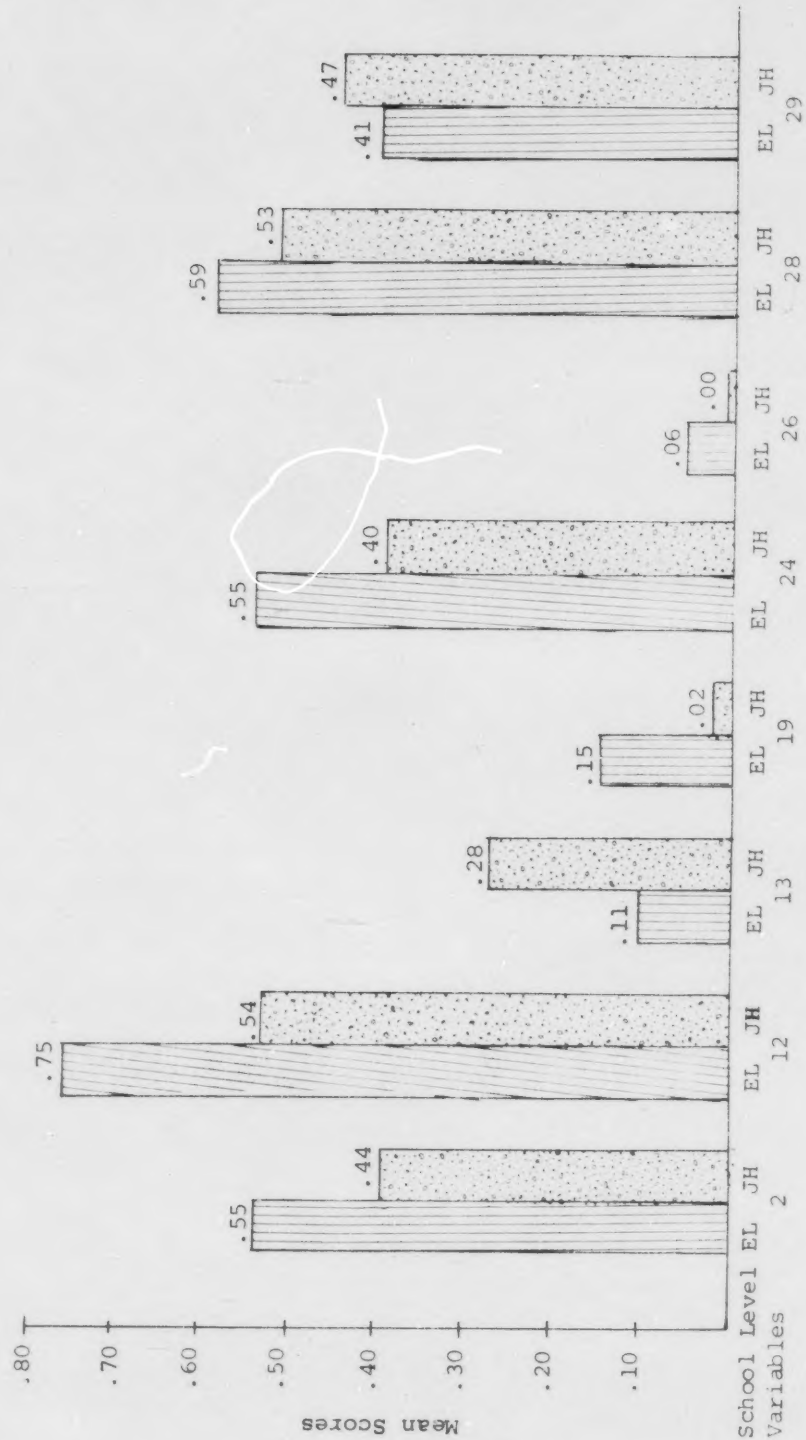
C = Pupil Ethnicity

engaged in more "repeating questions" sustaining feedback ($p < .01$), received more pupil-initiated procedural contacts ($p < .10$), and created more positive behavioral contacts ($p < .01$) than did junior high teachers. In elementary schools targeted pupils initiated pupil-pupil contacts ($p < .01$) more often than targeted pupils did in junior high schools. Only two instances occurred in which the obtained differences were significantly greater for junior high teachers than for elementary teachers. These were in the categories of "no feedback responses" ($p < .01$), and targeted pupils as "recipients of pupil-pupil verbal interactions" ($p < .01$). The differences listed between elementary and junior high teachers are shown graphically in Figure 7. On the basis of these findings major Hypothesis 3, stating that there are no differences between the verbal behaviors of elementary and junior high teachers, was rejected.

When the added dimension of teacher ethnicity was considered in analyzing differences between elementary and junior high teachers' verbal behavior, six significant differences occurred. All of these were weighted in favor of Black teachers. Further delineation of these data shows that junior high Black teachers created more discipline contacts ($p < .05$), received more wrong responses from students ($p < .05$), and gave more "no feedback responses" ($p < .01$) than did all other teachers, elementary or junior high, Black or White. By comparison, elementary Black

Figure 7

Significant Differences Between Elementary and Junior High Teachers' Verbal Behaviors in Terms of Direct Contacts (2), Positive Feedback (12), No Feedback (13), Repeating Questions (19), Pupil Initiated Procedural Contacts (24), Teacher Positive Behavioral Contacts (26), Pupil-Pupil Initiated (28) and Recipient Contacts (29)



teachers offered more positive terminal feedback ($p < .10$), "repeating questions" sustaining feedback ($p < .05$), and more positive behavioral contacts ($p < .05$) than did all other teachers. These data are presented visually in Figures 8 and 9 respectively. Therefore, major Hypothesis 4, which posited that there are no differences between the verbal behaviors of Black and White teachers in desegregated classrooms, was rejected.

The ten significant differences which occurred in pupil-teacher verbal interaction, when pupil ethnicity was treated independent of school level and teacher ethnicity, were evenly distributed between Black pupils and White pupils. Black targeted pupils received significantly more discipline contacts ($p < .05$), "ask others" terminal feedback ($p < .05$), "rephrasing or giving clues" sustaining feedback ($p < .05$), and more teacher-afforded work contacts ($p < .10$) than did White pupils from all teachers, irrespective of their racial identity or the school level which they taught. They also gave more wrong responses ($p < .01$) to questions posed by teachers. These differences are described further in Figure 10. By comparison, and as Figure 11 demonstrates, White pupils engaged in more open contacts ($p < .01$), gave more correct responses ($p < .01$), received more positive feedback ($p < .10$) and more "give answers" feedback ($p < .10$), and initiated more work contacts ($p < .05$) than Black students in all classes with all teachers.

Figure 8

Significant Differences in Junior High Black Teachers' Verbal Behaviors to All Other Teachers
As Indicated on Three Variables of the Teacher-Child Dyadic Interaction System
(DIS)

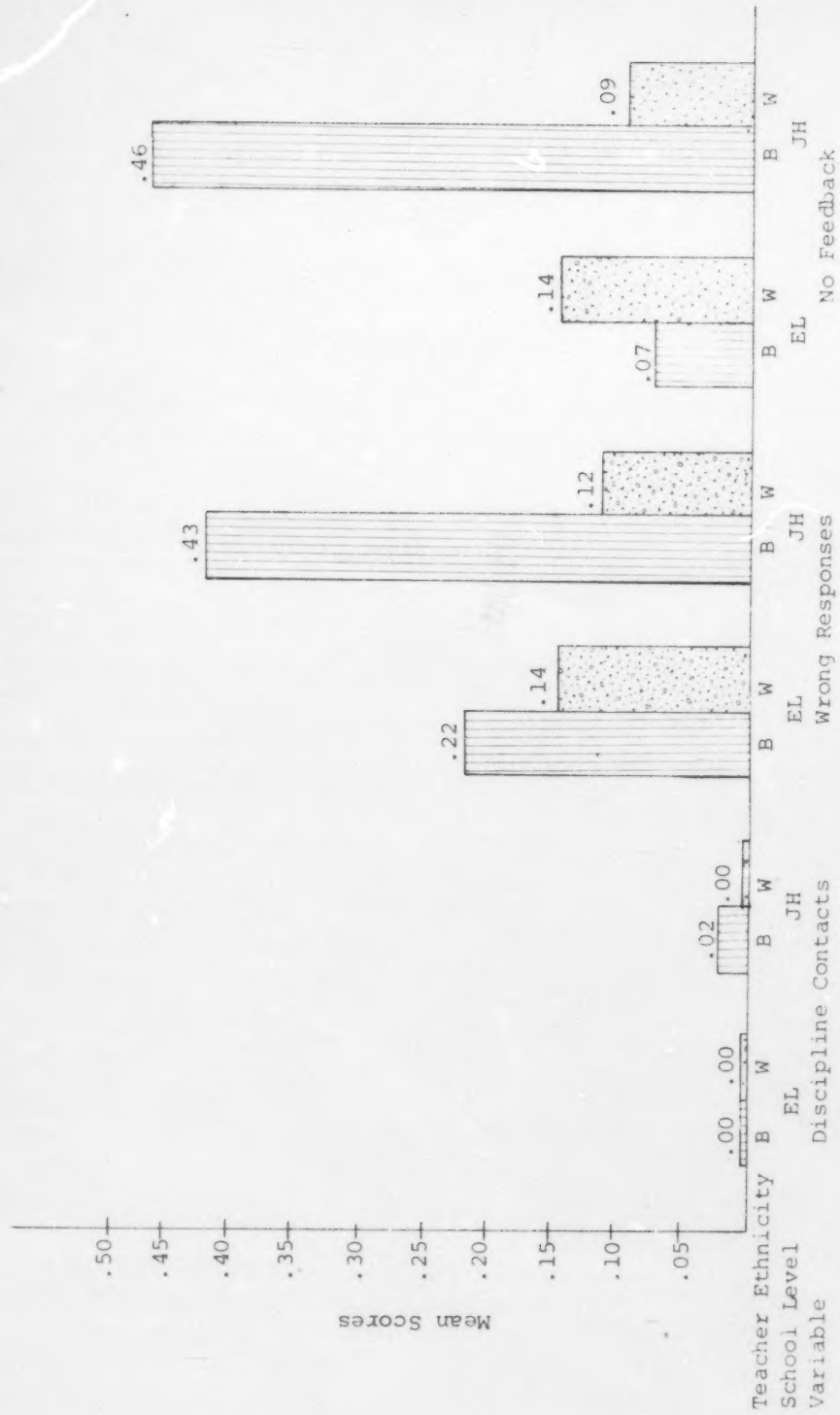


Figure 9

Significant Differences in Elementary Black Teachers' Verbal Behaviors to All Other Teachers
As Indicated on Three Variables on the Teacher-Child Dyadic Interaction System
(DIS)

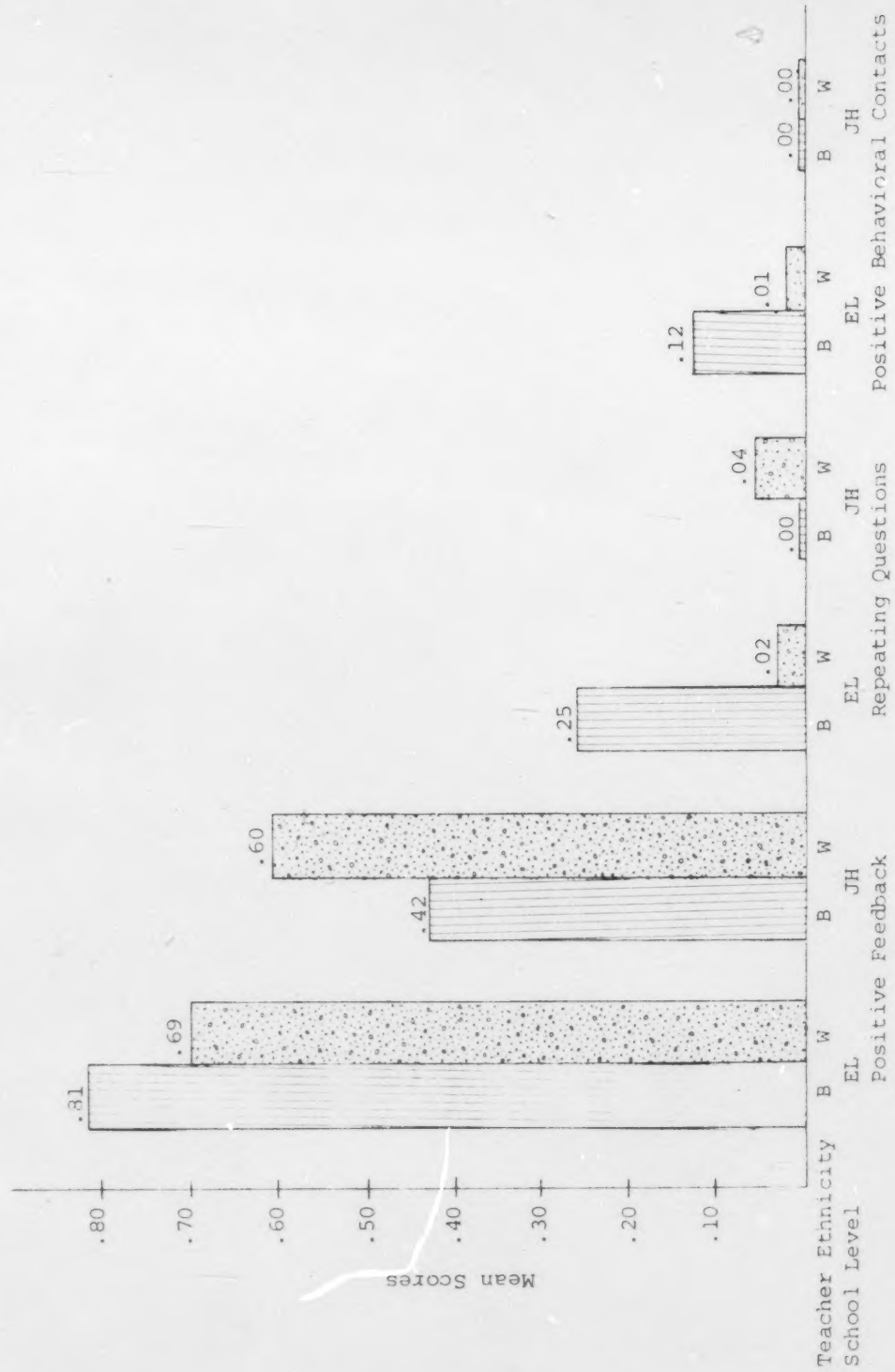


Figure 10

Significant Differences in Verbal Interaction of Black Targeted Pupils With All Teachers
(Elementary or Junior High, Black or White) on Discipline Contacts (1), Wrong
Responses (11), "Ask Others Feedback" (17), Rephrasing and Giving Clues
Feedback (20), and Teacher-Afforded Work Contacts (23)

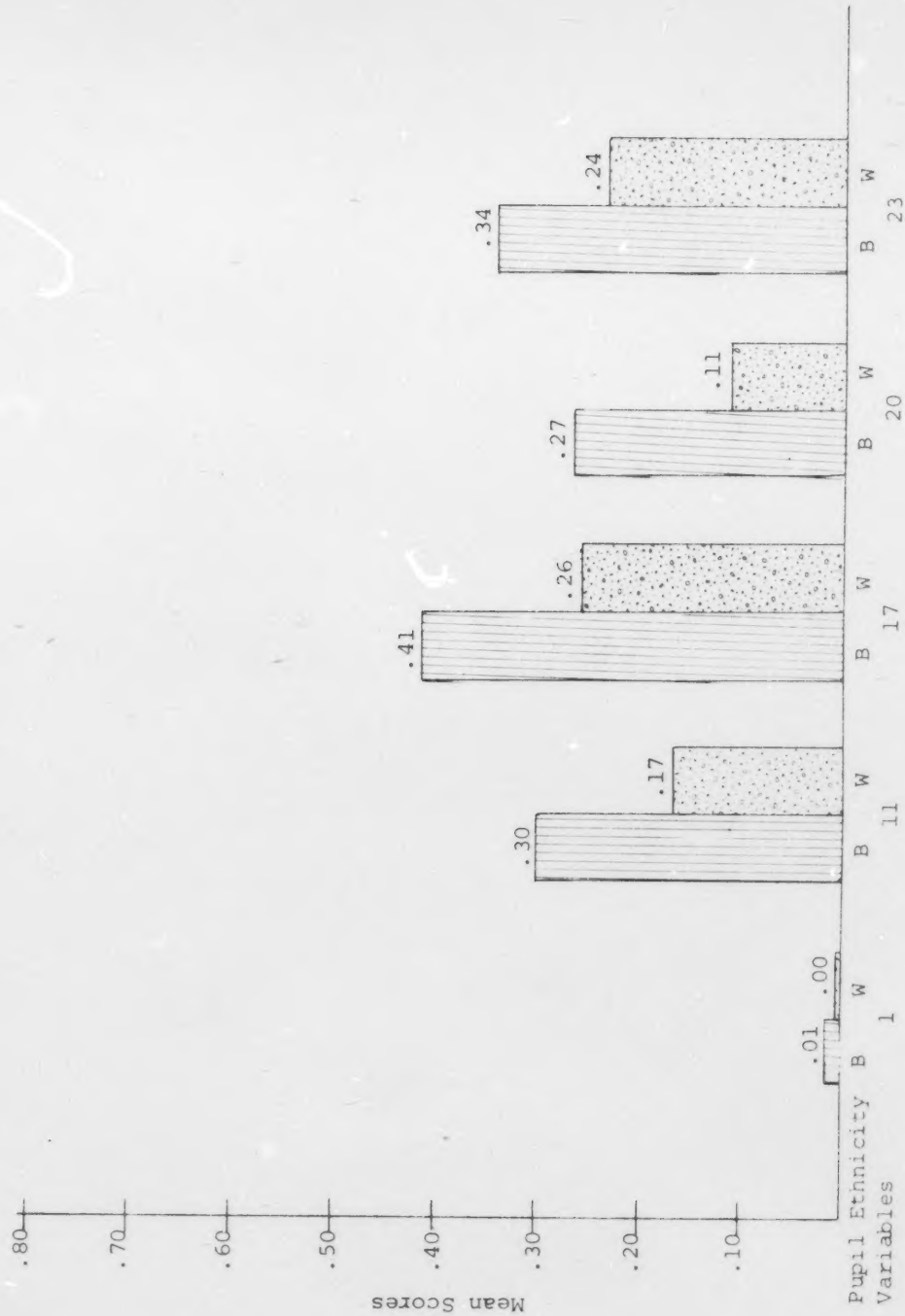
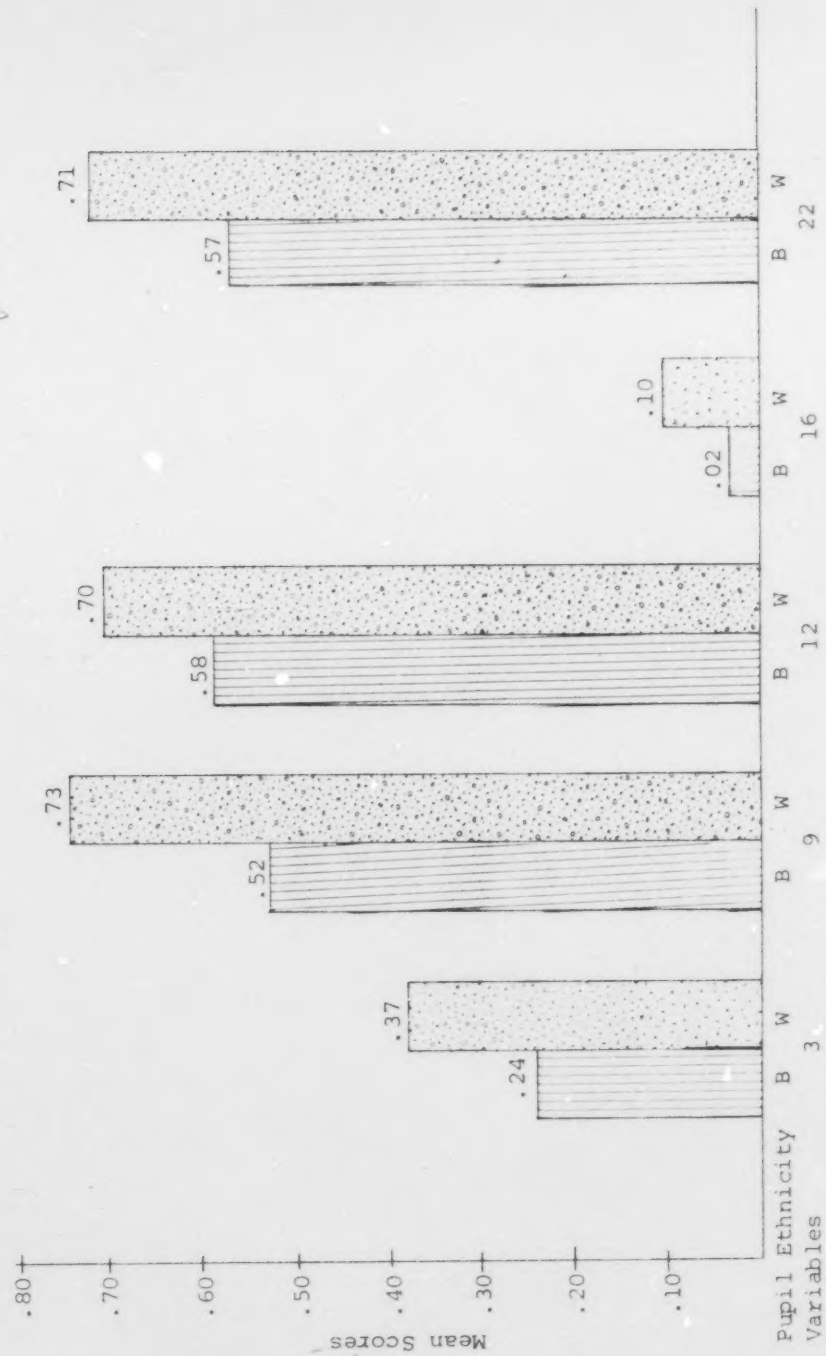


Figure 11

Significant Differences of the Verbal Interactions of White Targeted Pupils With All Teachers (Elementary or Junior High, Black or White) or Open Contacts (3), Correct Responses (9), Positive (12), and Give Answers (16), Feedback, and Pupil-Initiated Work Contacts (22)



The differences which were observed when pupil-teacher dyadic interactions were analyzed in terms of pupil ethnicity and school levels are depicted in Figure 12. The evidence suggest that Black pupils, in the elementary grades received significantly more "rephrase and give clues" sustaining feedback than did elementary White pupils, or junior high pupils, Black or White. The difference was significant at $p < .05$. The other significant difference occurred with White pupils in the junior high schools. They received more teacher-afforded procedural contacts ($p < .10$) than did all other pupils.

The six triple interactions which resulted from the analyses of variance are presented graphically in Figures 13-18. Figures 13 and 14 show that junior high Black teachers engaged in significantly more discipline contacts and "ask new questions" sustaining feedback with Black pupils than did all other teachers with all other pupils. These differences were significant at $p < .05$ and $p < .10$ respectively. Elementary Black teachers gave more "ask others" terminal feedback ($p < .05$) to BTP, asked more process questions of WTP ($p < .10$), and offered more positive behavioral contacts to WTP ($p < .05$) than all other teachers (elementary or junior high, Black or White) did to all other pupils. These differences are shown graphically in Figures 15, 16, and 17 respectively. Only one of the six three-way significant interactions was attributable to the verbal behaviors of White teachers. As Figure 18

Figure 12

Significant Differences in Black and White Pupils' Verbal Behavior With All Teachers
in Elementary and Junior High Schools as Indicated on Two Variables
on The Teacher-Child Dyadic Interaction System (DIS)

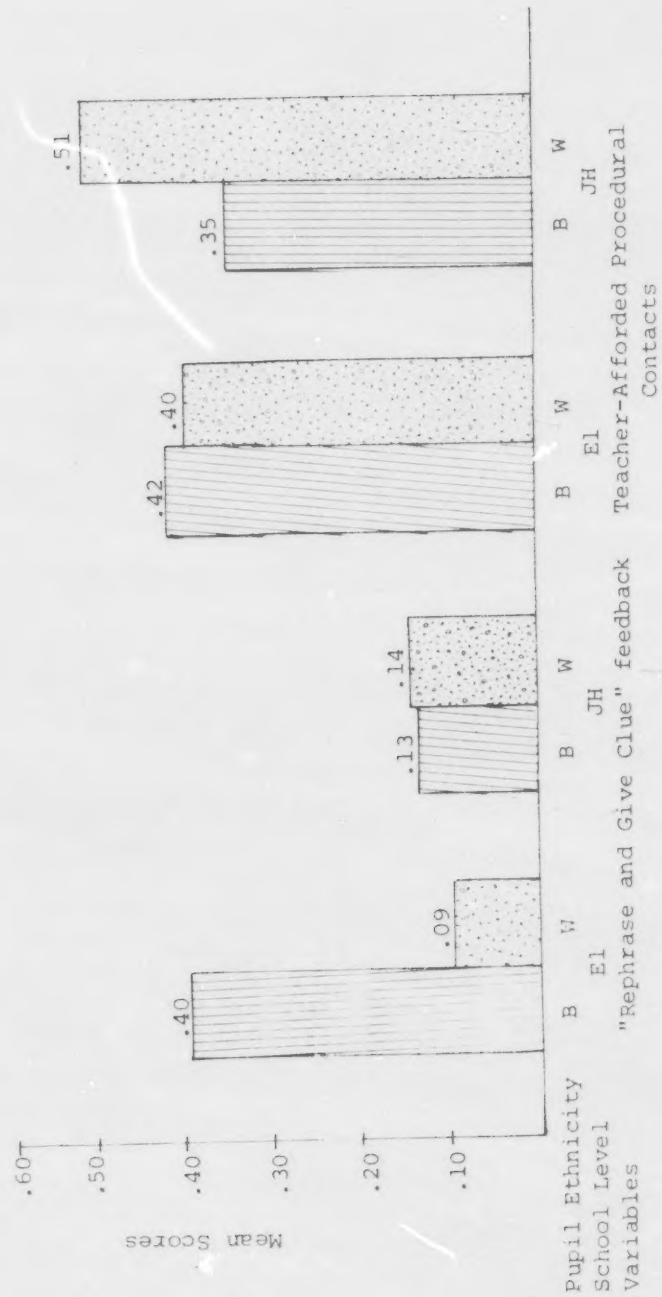


Figure 13

Significant Differences Between Elementary and Junior High
Black and White Teachers' Discipline Contacts with
Black and White Targeted Pupils

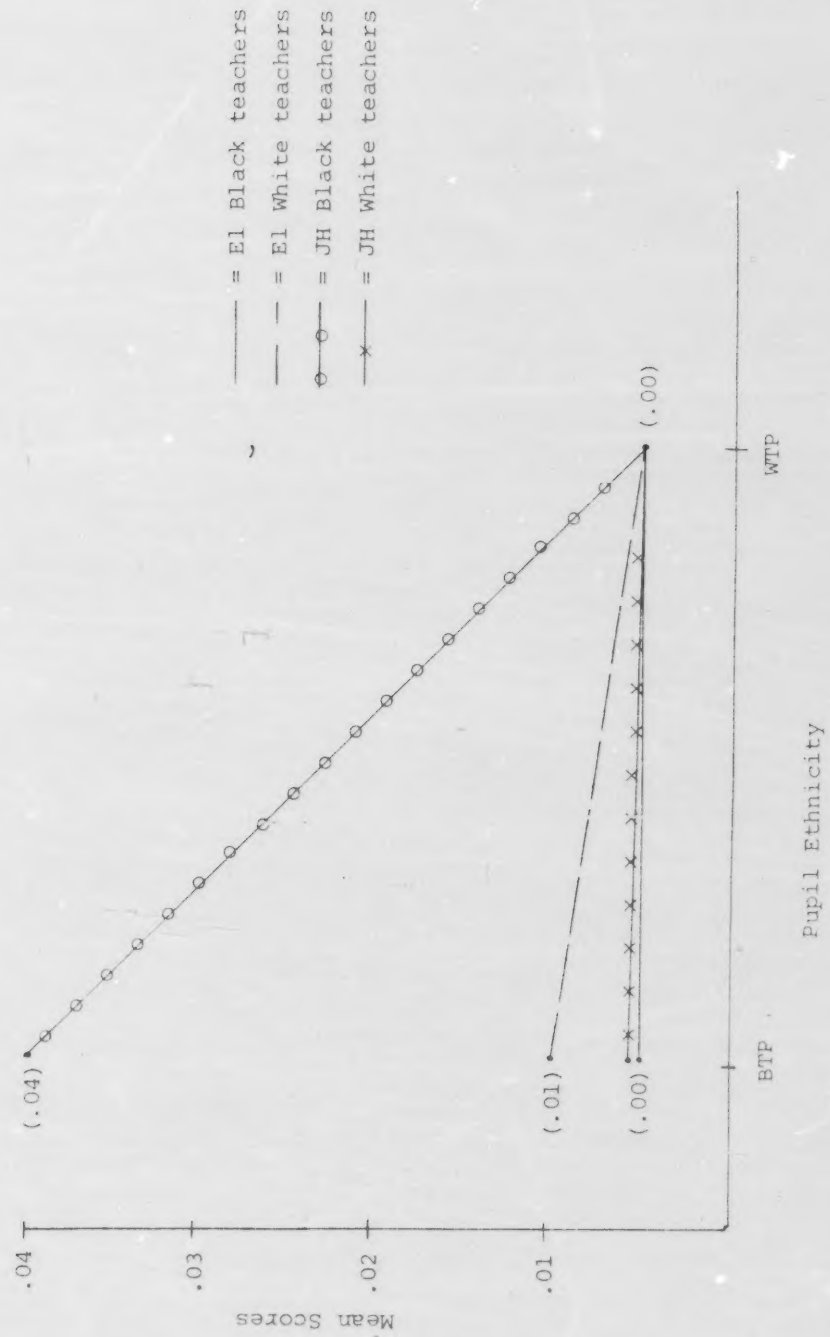


Figure 14
Significant Differences Between Elementary and Junior High
Black and White Teachers' "Ask New Questions Feedback" Contacts
with Black and White Targeted Pupils

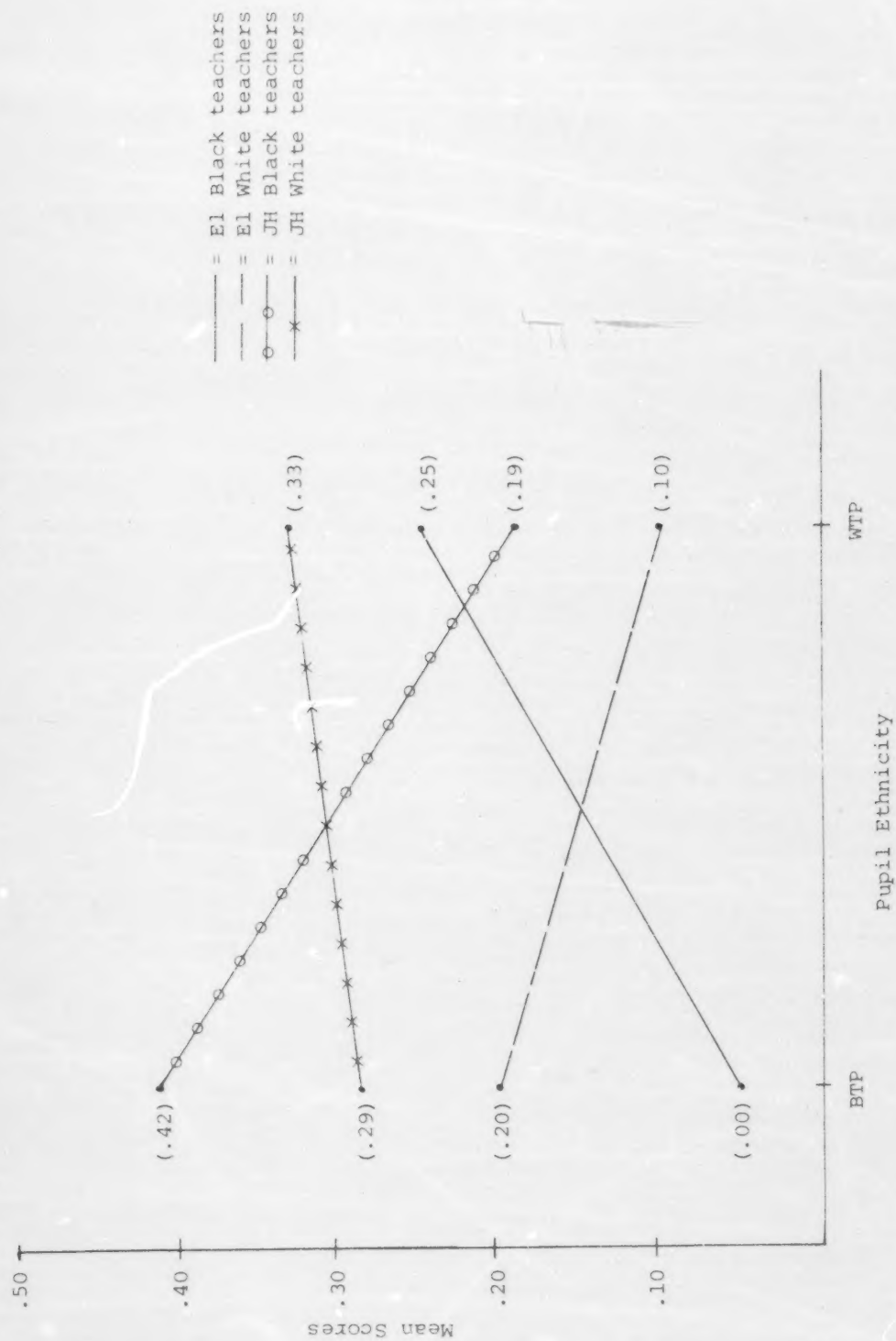


Figure 15

Significant Differences Between Elementary and Junior High
Black and White Teachers' "Ask Others Feedback"
Contacts with Black and White Targeted Pupils

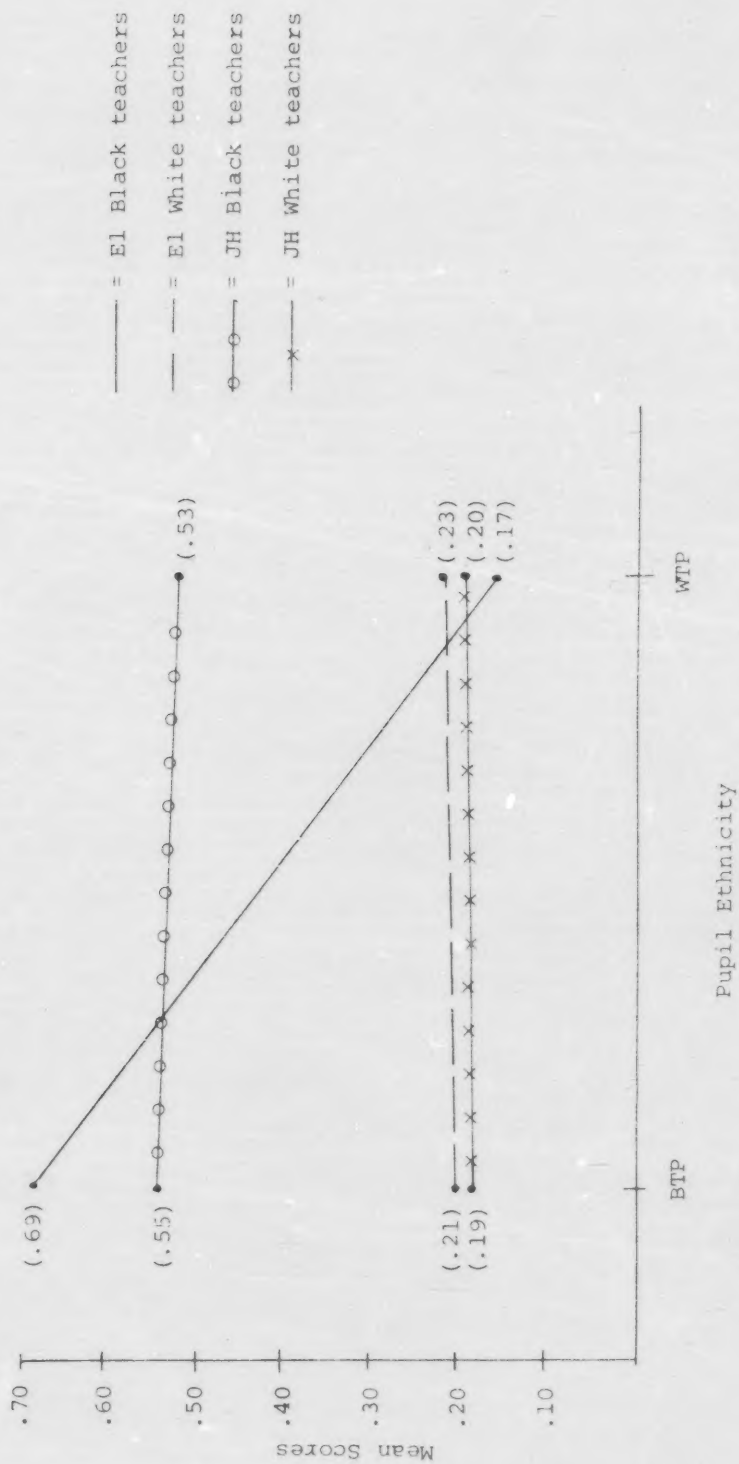


Figure 16
Significant Differences Between Elementary and Junior High
Black and White Teachers' Process Questions asked
of Black and White Targeted Pupils

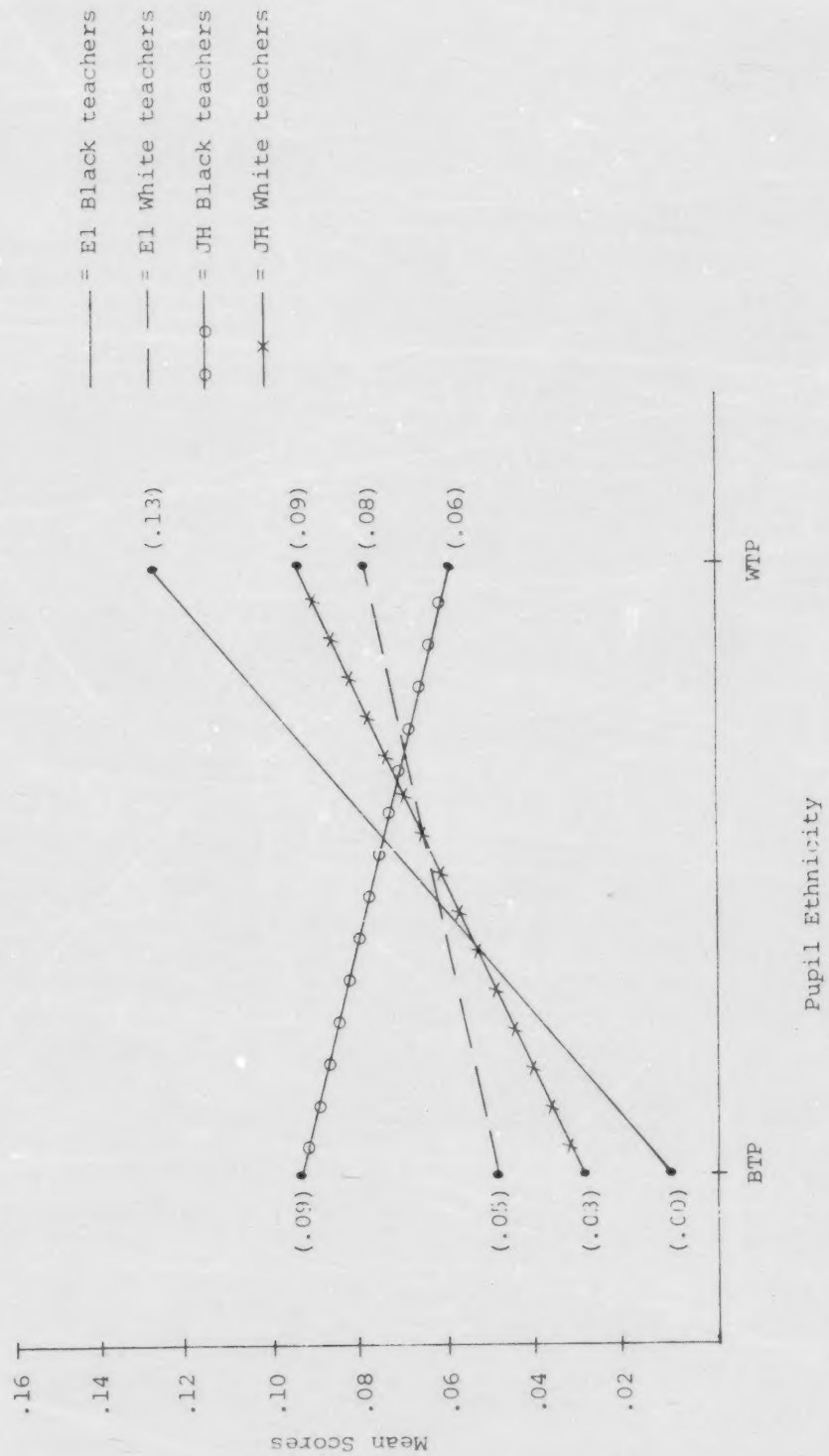


Figure 17
 Significant Differences Between Elementary and Junior High
 Black and White Teachers' Positive Behavioral Contacts
 With Black and White Targeted Pupils

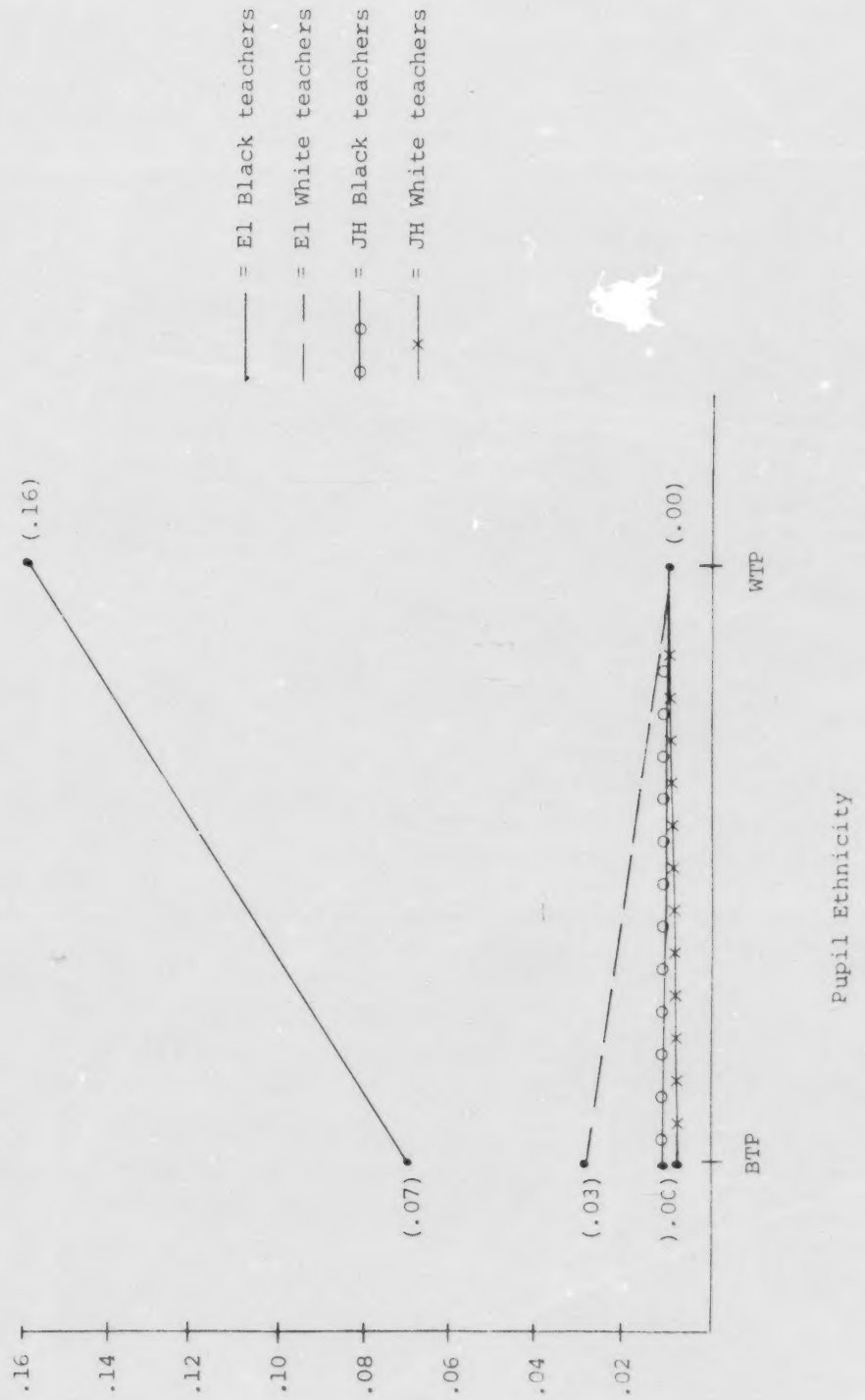
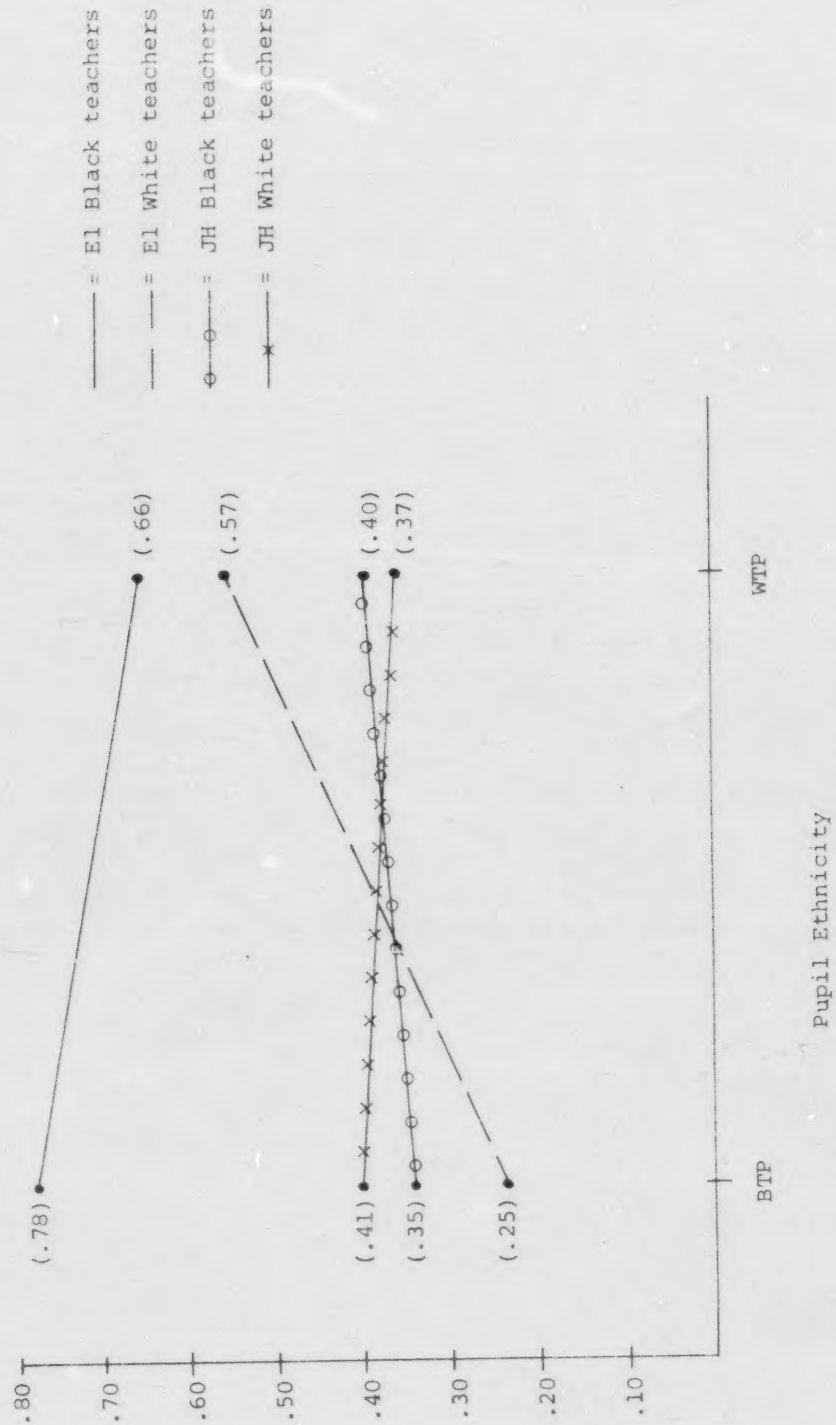


Figure 18

Significant Differences Between Elementary and Junior High
Black and White Teachers' Pupil-Initiated Procedural
Contacts with Black and White Targeted Pupils



indicates, a significantly greater number of pupil-initiated procedural contacts was created with elementary White teachers by White pupils than with all other teachers by all other pupils. These data suggest further that differences did occur in the verbal behaviors of Black and White teachers, and elementary and junior high teachers, thereby providing additional reasons as to why major Hypotheses 3 and 4 (see Chapter I) were rejected.

Testing Sub-hypotheses Derived from the DIS

The results from the several analyses of variance of Black and White teachers' verbal interactions with BTP and WTP in desegregated social studies classes reported above were used to test each of the sub-hypotheses (outlined in Chapter I) as it related to particular kinds of behavior. Table 18 summarizes the specific hypotheses which were derived from the Teacher-Child Dyadic Interaction System (DIS) and used to further test major Hypotheses 1-5. It also indicates whether each hypothesis was accepted or rejected relative to teacher ethnic groups (major H_{01} and H_{02}) within school levels, sample population by school level (major H_{03}), and the total research population across school levels (H_{04}).

The twenty-nine variables of the DIS were grouped into nine categories or sets of specific behaviors which distinguished different dimensions of pupil-teacher interactions in classroom situations. These categories included public response opportunities, levels or kinds of

TABLE 18

SUMMARY OF THE SPECIFIC SUBHYPOTHESES CONCERNING TEACHERS' VERBAL BEHAVIORS WHICH WERE DERIVED FROM THE VARIABLES OF THE DIS, AND TESTED ACCORDING TO TEACHER ETHNIC GROUPS BY SCHOOL LEVELS AND FOR THE TOTAL NUMBER OF TEACHER SUBJECTS

Variables	Elementary (20)			Junior High (32)			Senior High (22)		Total Teachers (74)				
	WT (Ho ₁)	BT (Ho ₂)	TT (Ho ₃)	WT Ho ₁	BT Ho ₂	TT Ho ₃	Ho ₁	Ho ₁	WT Ho ₁	BT Ho ₂	TT Ho ₄	Ho ₄	
A. Public Response Opportunities													
1.1 Discipline	Rj	AC	Rj	AC	Rj	Rj	AC	AC	AC	AC	Rj	Rj	AC
1.2 Direct	AC	Rj	Rj	AC	Rj	AC	AC	AC	AC	Rj	AC	AC	AC
1.3 Open	Rj	Rj	Rj	AC	Rj	Rj	AC	AC	AC	AC	Rj	AC	AC
1.4 Call-out	AC	AC	AC	Rj	AC	AC	AC	AC	AC	AC	AC	AC	AC
B. Questions													
1.5 Process	Rj	AC	AC	Rj	AC	AC	AC	AC	AC	AC	AC	Rj	Rj
1.6 Product	AC	AC	AC	AC	AC	AC	AC	Rj	AC	AC	AC	AC	AC
1.7 Choice	AC	AC	AC	AC	AC	AC	AC	Rj	AC	AC	AC	AC	AC
1.8 Self-Reference	AC	Rj	AC	AC	Rj	AC	AC	AC	AC	Rj	AC	AC	AC
C. Pupil Responses													
1.9 Correct	Rj	Rj	Rj	Rj	AC	Rj	AC	AC	AC	AC	AC	Rj	Rj
1.10 Partially Correct	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
1.11 Wrong	Rj	Rj	Rj	Rj	Rj	Rj	Rj	AC	AC	AC	AC	Rj	Rj

TABLE 18 (continued)

Variables	Elementary (20)			Junior High (32)			Senior High (22)		Total Teachers (74)			
	WT (HO ₁)	BT (HO ₂)	TT (HO ₃)	WT HO ₁	BT HO ₂	TT HO ₃	HO ₁		WT HO ₁	BT HO ₂	TT HO ₄	
G. Procedural Contacts												
1.24 Child-created	Rj	Rj	Rj	Ac	Ac	Ac	Ac		Ac	Ac	Ac	
1.25 Teacher Afforded	Rj	Ac	Rj	Ac	Ac	Rj	Ac		Rj	Ac	Ac	
H. Behavioral Contacts												
1.26 Positive	Ac	Rj	Rj	Ac	Ac	Ac	Ac		Ac	Rj	Ac	
1.27 Negative	Ac	Rj	Ac	Ac	Ac	Ac	Ac		Ac	Ac	Ac	
I. Pupil-Pupil Contacts												
1.28 Initiations	Ac	Rj	Rj	Ac	Ac	Ac	Ac		Ac	Ac	Ac	
1.29 Receptions	Ac	Rj	Rj	Ac	Ac	Ac	Ac		Ac	Ac	Ac	

Ac = Hypothesis Accepted

Rj = Hypothesis Rejected

questions, pupil responses, teacher terminal feedback, teacher sustaining feedback, work opportunities, procedural contacts, behavioral contacts, and pupil-pupil interactions. In Table 18 each of these categories is symbolized by a letter of the alphabet. This letter is followed by a series of numbers which represent the specific behaviors that combined to form the category. These numbers correspond with those listed in Chapter I as sub-hypotheses, and in Appendix G as variables of the DIS.

According to the information presented in Table 18 differences in teachers' verbal behaviors were not consistent across ethnic groups or school levels. This necessitated testing each of the sub-hypotheses according to each of the subgroups of the sample population, be it elementary Black teachers, or junior high White teachers, or total Black or White teachers. While some of the twenty-nine specific hypotheses concerning differences in pupil-teacher behavior and pupil-pupil verbal interactions were rejected for each of the subgroups, others were accepted. For example, in the elementary category nine hypotheses were rejected and twenty accepted for White teachers, while thirteen were rejected and sixteen accepted for Black teachers. By comparison, among the junior high teachers only six of the sub-hypotheses were rejected for White teachers and eight for Black teachers. When the teachers were grouped according to school levels, not

ethnicity, fifteen sub-hypotheses were rejected for elementary, nine for junior high, and four for senior high teachers. When elementary and junior high teachers were combined, only one hypothesis was rejected for White teachers and seven for Black teachers. When the total teacher population was treated as a single group without regard to ethnicity, the number of sub-hypotheses rejected rose to eleven. This information suggest that, in general, there were differences in Black and White, and elementary, junior high, and senior high school teachers' observed verbal interactions with Black and White pupils in desegregated classrooms. The form these specific differences took were contingent upon the subgroup of the total sample population under consideration.

Analysis of Variance of Obtained Data
on the Teacher Estimates of Extent (TEE)
and Quality (TEQ) of Pupil-Teacher Interaction

The mean and standard deviation scores of elementary, junior high, senior high and total teacher subjects' estimates of the extent and quality of pupils' participation in classroom interactions are recorded in Tables 19-22 respectively. These scores were used to compute the analyses of variance to determine if there were any significant differences between Black and White teachers' estimates of the extent or frequency and quality of BTP's and WTP's participation in classroom interactions. The results of these analyses are presented in Tables 23-28.

TABLE 19
COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES OF
ELEMENTARY TEACHERS ON THE VARIABLES OF TEE AND TEQ
(n=20)

Variables	Black Teachers (n=4)				White Teachers (n=16)				Total Teachers (n=20)			
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD
30-TEE	57.10	11.77	50.95	5.16	52.77	18.30	52.22	12.14	53.49	17.46	52.01	11.29
31-TEQ	51.27	10.69	61.61	14.29	49.42	19.81	53.62	16.00	49.73	18.62	54.95	16.00

TABLE 20

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES OF JUNIOR
HIGH TEACHERS ON THE VARIABLES OF TEE AND TEQ
(n=32)

Variables	Black Teachers (n=9)		White Teachers (n=23)		Total Teachers (n=32)	
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD
30-TEE	54.34	31.38	60.22	22.26	56.27	18.09
					59.22	17.94
					55.71	22.78
					59.51	19.30
31-TEQ	44.24	25.29	55.65	22.19	52.34	20.17
					60.18	12.12
					50.08	22.04
					58.91	15.76

TABLE 21

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES
 OF HIGH SCHOOL TEACHERS BY TARGETED PUPILS
 ON THE VARIABLES OF THE TEE AND TEQ
 (n=22)

Variables	Black Targeted Pupils		White Targeted Pupils	
	$\bar{X}$	SD	$\bar{X}$	SD
30-TEE	48.59	20.31	55.54	19.04
31-TEQ	42.09	19.52	58.48	18.88

TABLE 22

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES
 OF TOTAL TEACHER SUBJECTS BY TARGETED PUPILS
 ON THE VARIABLES OF THE TEE AND TEQ
 (n=74)

Variables	<u>Black Targeted Pupils</u>		<u>White Targeted Pupils</u>	
	$\bar{X}$	SD	$\bar{X}$	SD
30-TEE	52.65	21.35	56.61	17.85
31-TEQ	47.40	20.74	57.95	16.84

TABLE 23

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY TEACHERS' MEAN SCORES ON THE
TEACHER'S ESTIMATES OF EXTENT OF PUPIL-TEACHER INTERACTION (TEE) AND
TEACHER'S ESTIMATES OF QUALITY OF PUPIL-TEACHER INTERACTION (TEQ)
BY TEACHER ETHNICITY

Variables	<u>Black Teachers</u>			<u>White Teachers</u>		
	MS	Error	F-Ratio	P	MS	Error
30-TEE	56.7777	67.9063	.84		3.2535	114.5362
31-TEQ	160.3143	55.7857	2.87		131.9036	193.7189

TABLE 24

SUMMARY OF ANALYSIS OF VARIANCE OF JUNIOR HIGH TEACHERS' MEAN SCORES ON THE
TEACHER'S ESTIMATES OF EXTENT OF PUPIL-TEACHER INTERACTION (TEE) AND
TEACHER'S ESTIMATES OF QUALITY OF PUPIL-TEACHER INTERACTION (TEQ)
BY TEACHER ETHNICITY

Variables	Black Teachers			White Teachers		
	MS	Error	F-Ratio	P	MS	Error
30-TEE	155.6212	209.8075	.74		95.6819	276.0511
31-TEQ	586.0964	337.1465	1.74		701.8686	211.1949
						3.32*
						.079

* = .10
** = .05
*** = .01

TABLE 25

SUMMARY OF ANALYSIS OF VARIANCE OF SENIOR HIGH TEACHERS'
 MEAN SCORES ON THE TEACHER'S ESTIMATES OF EXTENT OF
PUPIL-TEACHER INTERACTION (TEE) AND TEACHER'S
ESTIMATES OF QUALITY OF PUPIL-TEACHER
INTERACTION (TEQ) BY TEACHER
 ETHNICITY

Variables	MS	Error	F-Ratio	P
30-TEE	508.4181	317.2768	1.60	
31-TEQ	2,820.7619	416.3219	6.78**	.016

* = .10
 ** = .05
 *** = .01

TABLE 26

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY TEACHERS' MEAN SCORES ON THE
 TEACHER'S ESTIMATES OF THE EXTENT OF PUPIL-TEACHER INTERACTION (TEE), AND
THE TEACHER'S ESTIMATES OF THE QUALITY OF PUPIL-TEACHER INTERACTION
 (TEQ) BY TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
30-TEE	11.7491	.03		19.7719	.18		39.2593	.36	
31-TEQ	120.9500	.25		245.0260	1.36		47.1919	.27	

* = .10
 ** = .05
 *** = .01

TABLE 27

SUMMARY OF ANALYSIS OF VARIANCE OF JUNIOR HIGH TEACHERS' MEAN SCORES ON THE
 TEACHER'S ESTIMATES OF THE EXTENT OF PUPIL-TEACHER INTERACTION (TEE), AND
 THE TEACHER'S ESTIMATES OF THE QUALITY OF PUPIL-TEACHER INTERACTION
 (TEQ) BY TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
30-TEE	2.7472	.00		223.8607	.87		27.4423	.11	
31-TEQ	519.4291	1.00		1,246.0445	5.09**	.030	41.9206	.17	

* = .10
 ** = .05
 *** = .01

TABLE 28

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY AND JUNIOR HIGH TEACHERS' MEAN SCORES ON THE TEACHER'S ESTIMATES OF THE EXTENT OF PUPIL-TEACHER INTERACTION (TEE), AND THE TEACHER'S ESTIMATES OF THE QUALITY OF PUPIL-TEACHER INTERACTION (TEQ) BY SCHOOL LEVEL, TEACHER ETHNICITY, AND PUPIL ETHNICITY

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
30-TEE	A	2221.719	2.54		C	13.670	.07	
	B	189.133	.22		AC	204.743	1.06	
	AB	875.931	.56		BC	1.160	.01	
					ABC	54.878	.29	
31-TEQ	A	1040.830			C	1022.740	4.81***	.031
	B	648.609			AC	60.850	.29	
	AB	.570			BC	58.969	.28	
					ABC	.053	.00	

* = .10 A = School Level
 ** = .05 B = Teacher Ethnicity
 *** = .01 C = Pupil Ethnicity

No significant differences were obtained in the analyses of variance of teachers' estimates of the extent of pupils' participation in classroom verbal interactions. Therefore, Hypothesis 6 (see Chapter I) was accepted for all teachers.

Three significant differences were obtained on teachers' assessments of the quality of pupils' classroom participation. Tables 24 and 26 indicate that junior high White teachers estimated the quality of White pupils' participation to be significantly better than that of Black pupils. Table 26 shows that senior high White teachers did likewise. These differences were significant at $p < .10$ and $p < .05$ respectively. The data recorded in Table 28 suggest that when teachers' estimates of the quality of pupils' participation were considered without regard to teacher ethnicity and school level again White pupils were rated better ($p < .05$) than Black pupils. On the basis of these findings Hypothesis 7 (see Chapter I) was accepted for elementary Black and White teachers and junior high Black teachers, but rejected for junior high and senior high White teachers.

Analyses of Variance of Obtained Data on the Student Sociometric Questionnaire

Elementary Teachers

Data on pupils' perceptions of pupil-teacher interactions in desegregated classrooms were obtained through the use of the Student Sociometric Questionnaire. Each of the nine items or variables of this instrument produced

two sets of scores for each student. The first involved the number of nominations or votes Black targeted pupils (BTP) and White targeted pupils (WTP) received on each item. These data are reported as SSQ₁. The second set of scores represented the number of targeted pupils nominated per item, and is referred to in the data analyses as SSQ₂. The two sets of data were subjected to separate analyses of variance for all teachers, according to ethnicity and school levels. The results were used to test major Hypothesis 8, which posited that there are no differences between pupil perceptions of Black and White pupils' interactions, with Black and White teachers in desegregated classrooms, and its supportive sub-hypothesis, 8:32 - 8:49, as outlined in Chapter I.

Table 29 presents mean scores and standard deviations of elementary teachers on the SSQ₁. Results of the sample analyses of variance of these scores are reported in Table 30. Significant differences between Black and White targeted pupils' opportunities for participation in classroom activities in those classes taught by Black teachers occurred on two of the nine items. White pupils were identified as the ones who were asked to "read the lesson aloud" ($p < .10$), and were "called on most often" ($p < .10$) than Black pupils. In elementary classes taught by White teachers five significant differences were obtained. All of these differences were significant at or above $p < .01$, and were weighted in favor of White pupils. They included:

TABLE 29

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES OF
ELEMENTARY TEACHERS ON THE VARIABLES OF $\underline{SSQ}_1$
(n=20)

Variables	Black Teachers (n=4)				White Teachers (n=16)				Total Teachers (n=20)			
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD
32	.36	.13	1.17	.58	.28	.30	1.31	1.15	.29	.28	1.28	1.06
33	1.09	.66	1.05	.94	1.29	1.26	1.47	1.07	1.25	1.17	1.39	1.06
34	.65	.28	.68	.44	.51	.60	1.05	.77	.53	.55	.98	.73
35	1.25	1.06	.70	.09	1.02	.58	.75	.66	1.07	.71	.74	.60
36	.39	.12	.92	.74	.31	.33	1.29	1.18	.33	.30	1.22	1.12
37	.94	1.00	.48	.36	.72	.54	.78	.68	.77	.66	.72	.64
38	1.34	.87	.45	.49	1.09	1.17	.63	.90	1.14	1.12	.60	.84
39	.34	.04	.93	.58	.39	.39	1.47	1.45	.38	.35	1.37	1.34
40	.32	.25	1.20	.76	.38	.54	1.25	.92	.36	.50	1.24	.89

TABLE 30

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY TEACHERS' MEAN SCORES OF
NOMINATIONS TARGETED PUPILS RECEIVED PER ITEM ON THE STUDENT
SOCIO-METRIC QUESTIONNAIRE (SSQ₁) BY TEACHER ETHNICITY

Variables	Black Teachers				White Teachers			
	MS	Error	F-Ratio	P	MS	Error	F-Ratio	P
32	1.3261	.1886	7.03*	.076	8.5652	.7360	11.64***	.004
33	.0024	1.4024	.00		.2699	1.5564	.17	
34	.0033	.1303	.03		2.3895	.2453	9.56***	.007
35	.6076	.6648	.91		.5913	.4703	1.26	
36	.5563	.4325	1.29		7.6538	.6935	11.04***	.005
37	.4378	1.0812	.41		.0306	.3066	.10	
38	1.5648	.7314	2.14		1.6476	1.0719	1.54	
39	.7115	.2326	3.06		9.3588	1.0322	9.07***	.009
40	1.5480	.1797	8.61*	.059	6.2030	.6547	9.48***	.009

* = .10

** = .05

*** = .01

"read the lesson aloud; "did a fine job on your report"; "no one else seems to know the answer so will you give it"; "best student in class"; and "called on most often by teachers." The 2 x 2 analyses of variance of elementary teachers' mean scores on the SSQ₁, when treated as a single group without regard to teacher ethnicity, produced similar results. In addition to the five significant measures stated above, Black pupils were identified most often as those who "did poor work in class". This difference was significant at $p < .10$. These data are summarized in Table 31, and depicted graphically in Figure 19. Since the number of obtained significant results was itself significant for all groups of elementary teachers (Black, White, and total), major Hypothesis 8 was rejected for all elementary teachers.

Tables 32 and 33 report the mean scores and results of the analyses of variance of the number of elementary Black and White pupils nominated for each item of the SSQ₂. Significant differences occurred on three of the variables for Black teachers and two for White teachers. A greater number of White pupils were asked to read the lesson aloud ($p < .01$) and were named as the best students ($p < .10$), while more Black pupils were named as the ones who did poor work in class ($p < .10$). In those classes taught by Whites more White pupils were nominated to read aloud ($p < .10$) and for being called on most often by teachers ($p < .01$). The same findings resulted when all elementary teachers were treated as a single group, independent of teachers' ethnic

TABLE 31

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY TEACHERS' MEAN SCORES ON THE
NUMBER OF TARGETED PUPILS NOMINATED PER ITEM ON THE STUDENT SOCIO-METRIC
QUESTIONNAIRE (SSQ₁) BY TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group Pupil Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
32	.0047	.01		9.8136	.1522***	.001	.0777	.12	
33	.6255	.53		.1961	.13		.0762	.05	
34	.0822	.12		1.9831	8.64***	.009	.4077	1.79	
35	.0536	.12		1.0741	2.14		.1248	.25	
36	.1462	.18		7.8850	12.13***	.003	.3251	.50	
37	.0117	.02		.0195	.05		.4489	1.03	
38	.0082	.01		2.9156	2.87*	.104	.2968	.29	
39	.5613	.48		9.6937	10.78***	.004	.3766	.42	
40	.0118	.02		7.7510	13.47***	.002	.0000	.00	

* = .10
** = .05
*** = .01

Figure 19
Significant Differences in Pupils' Perceptions of How Much Opportunity (SSQ₁) BTP and WTP Have for Verbal Interaction with Elementary Teachers in Terms of "Who reads aloud" (1), "Who did a fine job" (3), "Who answers when no one else can" (5), "Who does poor work" (7), "The best student" (8), and "Who is called on most often by teachers" (9)

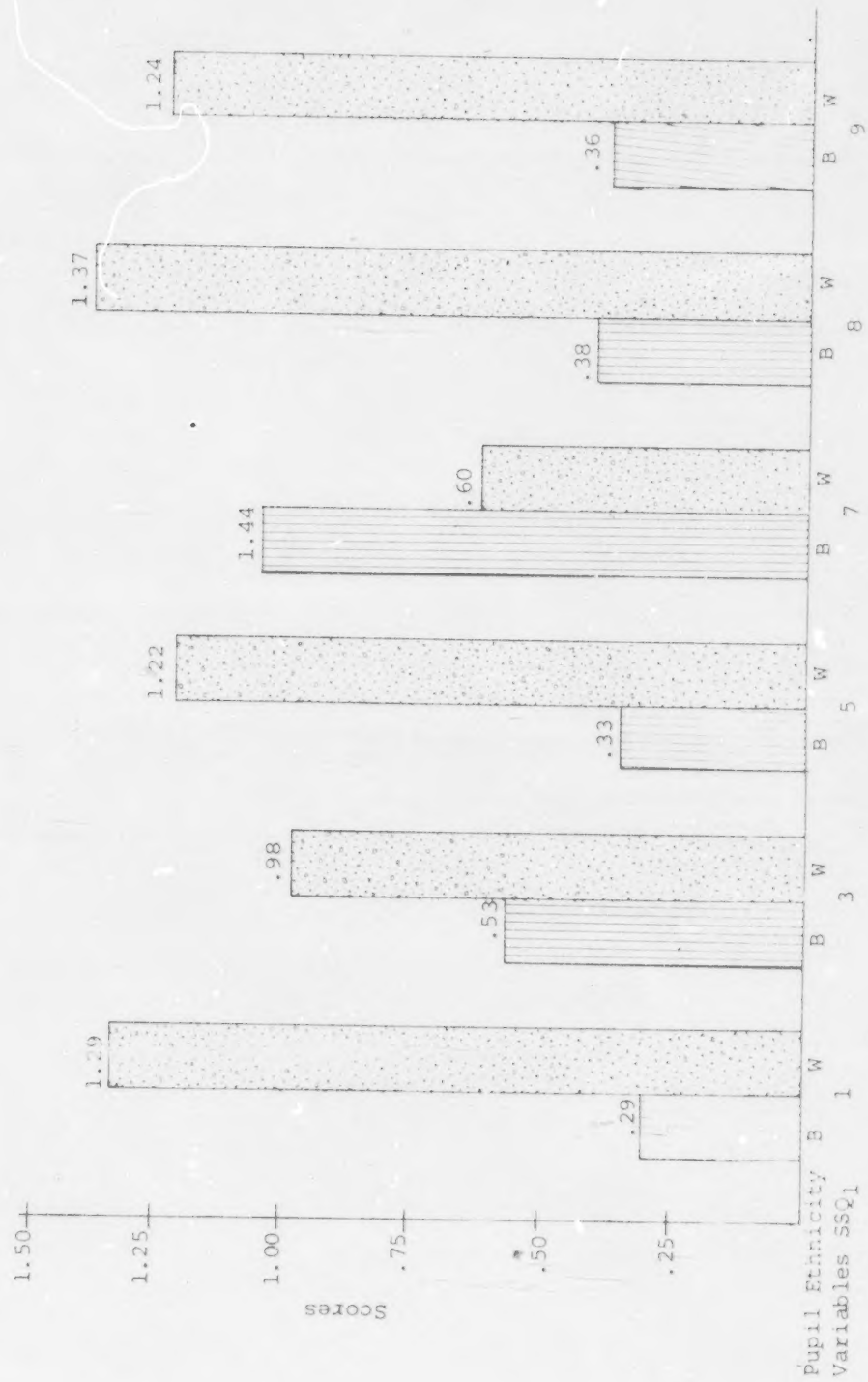


TABLE 32

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES OF
ELEMENTARY TEACHERS ON THE VARIABLES OF SSQ_2

Variables	Black Teachers (n=4)				White Teachers (n=16)				Total Teachers (n=20)			
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD
41	.32	.08	.53	.10	.20	.20	.36	.29	.23	.19	.40	.27
42	.39	.17	.35	.23	.41	.25	.49	.26	.40	.24	.46	.26
43	.48	.17	.35	.27	.32	.24	.41	.24	.36	.24	.40	.24
44	.45	.09	.46	.13	.47	.20	.40	.24	.47	.18	.41	.23
45	.30	.10	.41	.35	.25	.26	.37	.27	.26	.24	.38	.29
46	.32	.08	.28	.20	.44	.31	.38	.26	.41	.29	.36	.25
47	.47	.10	.24	.16	.29	.24	.30	.27	.32	.23	.29	.25
48	.30	.09	.39	.29	.30	.32	.39	.28	.30	.29	.39	.28
49	.25	.18	.42	.06	.19	.18	.39	.27	.20	.18	.40	.25

TABLE 33

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY TEACHERS' MEAN SCORES OF NUMBERS
OF TARGETED PUPILS NOMINATED PER ITEM OF THE STUDENT SOCIOMETRIC
QUESTIONNAIRE (SSQ₂) BY TEACHER ETHNICITY

Variables	Black Teachers				White Teachers			
	MS	Error	F-Ratio	P	MS	Error	F-Ratio	P
41	.0888	.0036	24.56***	.014	.2006	.0662	3.03*	.099
42	.0045	.0204	.22		.0546	.0778	.70	
43	.0343	.0660	.51		.0579	.0322	1.80	
44	.0001	.0080	.01		.0438	.0402	1.09	
45	.0331	.1177	.28		.1038	.0664	1.56	
46	.0035	.0220	.16		.0269	.0536	.50	
47	.1013	.0161	6.30*	.086	.0009	.0399	.02	
48	.0177	.0473	.37		.0647	.0712	.91	
49	.0572	.0095	5.99*	.091	.3369	.0428	77.88***	.013

* = .10

** = .05

*** = .01

TABLE 34

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY TEACHERS' MEAN SCORES ON THE
NUMBER OF TARGETED PUPILS NOMINATED PER ITEM ON THE STUDENT SOCIOMETRIC
QUESTIONNAIRE (SSQ₂) BY TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group Pupil Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
41	.1348	2.45		.2850	5.11**	.035	.0044	.08	
42	.0390	.60		.0320	.47		.0271	.40	
43	.0179	.21		.0175	.46		.0747	1.97	
44	.0027	.05		.0336	.97		.0102	.29	
45	.0208	.26		.1365	1.82		.0003	.01	
46	.0713	.66		.0299	.62		.0004	.01	
47	.0241	.28		.0134	.37		.0887	2.47	
48	.0000	.00		.0824	1.23		.0000	.00	
49	.0100	.15		.3919	10.53***	.005	.0021	.06	

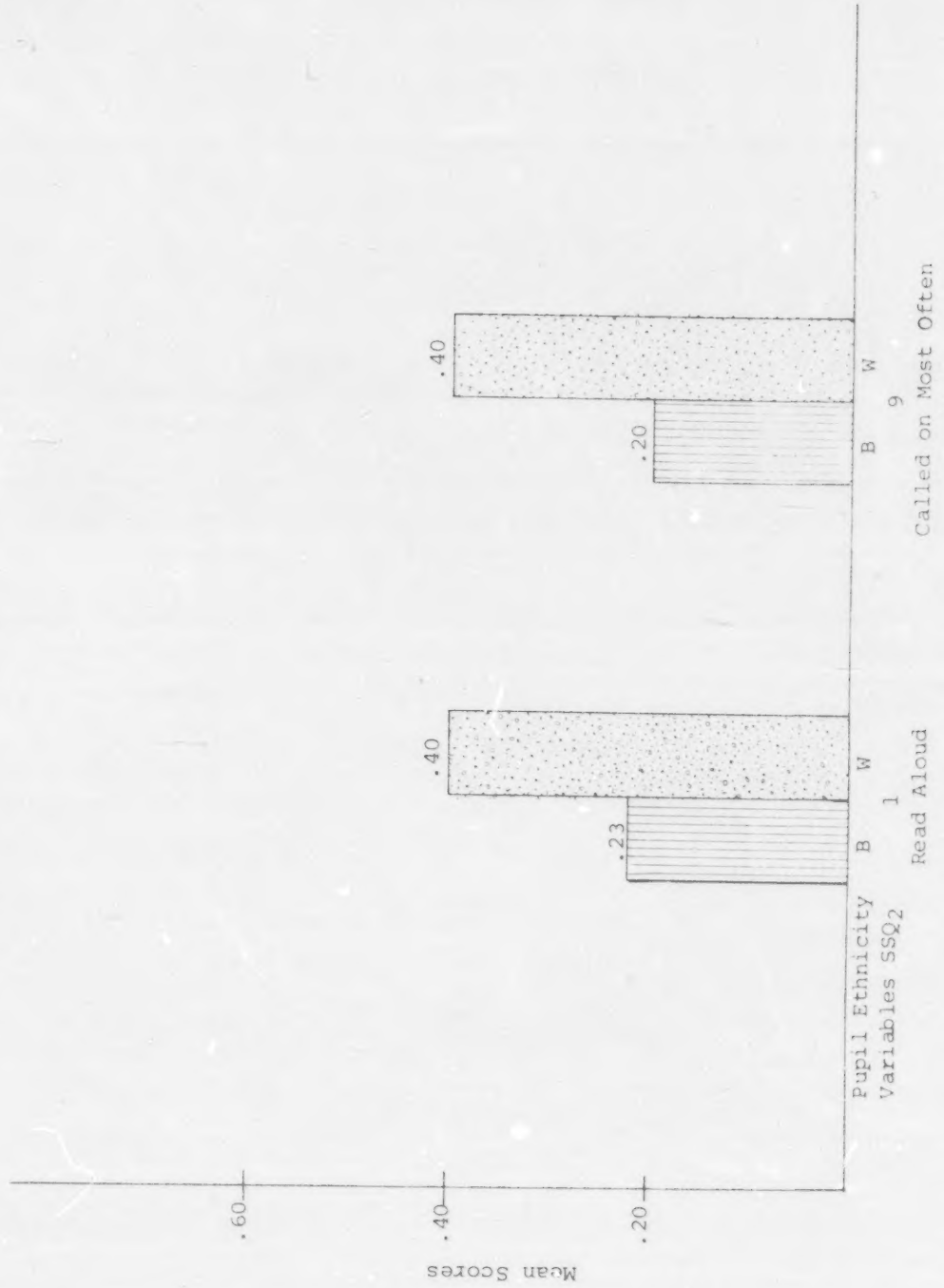
* = .10

** = .05

*** = .01

Figure 20

Significant Differences in Pupils' Perceptions of the Number of Targeted Pupils (SSQ₂) Who Received Opportunities for Verbal Interaction With Elementary Teachers in Terms of "Who reads aloud" and "Who is called on most often"



identity, and their scores on the items of the SSQ_2 were subjected to two-way analyses of variance. However, the level at which these differences were significant ($p < .05$ and $p < .01$ respectively) did differ. These findings are summarized in Table 34 and Figure 20.

Junior High Teachers

Data on junior high teachers mean scores on the SSQ_1 and the analyses of these scores are reported in Tables 35-37. Only one variable on the SSQ_1 (see Table 36) was significant for Black and White pupils in Black teachers' classrooms. White pupils were identified more often as those who were told "you did a fine job on your report." This difference was significant at $p < .10$. Table 36 also shows that significant differences were obtained on six of the nine measures for pupils in classes taught by White teachers. Four of these favored White pupils and two Black pupils. White pupils received more nominations on "read the lesson aloud" ($p < .01$); "no one else knows the answer so you answer the question" ($p < .05$); "the best student in class" ($p < .01$); and "who does the teacher call on most often" ($p < .05$). Black pupils, on the other hand, were asked to "erase the chalkboard," and did "poor work in class" more often than White pupils. These differences were significant at $p < .10$ and $p < .01$ respectively.

The two-way analyses of variance of BTP and WTP's opportunities to take part in pupil-teacher interaction, when Black and White junior high teachers were treated as

TABLE 35
COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES OF
JUNIOR HIGH SCHOOL TEACHERS ON THE VARIABLES OF SSQ₁

Variables	Black Teachers (n=9)				White Teachers (n=23)				Total Teachers (n=32)			
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD
32	.38	.78	1.14	1.20	.32	.54	1.14	1.07	.34	.61	1.14	1.11
33	1.37	1.43	.72	.81	1.09	1.01	.60	.89	1.17	1.15	.63	.87
34	.27	.37	1.38	1.34	.52	.46	.69	.92	.45	.45	.88	1.10
35	.96	1.32	.51	.60	.89	.91	.53	.51	.91	1.04	.53	.54
36	.40	.44	1.48	1.68	.50	.52	1.04	1.04	.47	.50	1.16	1.27
37	.70	.45	.77	1.35	1.16	1.93	.61	.56	1.03	1.66	.66	.86
38	1.26	.79	.61	1.11	1.21	.92	.31	.30	1.23	.89	.40	.65
39	.11	.17	1.23	1.93	.31	.32	.98	1.19	.25	.30	1.05	1.44
40	.51	.62	1.84	2.94	.52	.43	.94	.73	.52	.49	1.19	.72

TABLE 36

SUMMARY OF ANALYSIS OF VARIANCE OF JUNIOR HIGH TEACHERS' MEAN SCORES OF
NOMINATIONS TARGETED PUPILS RECEIVED PER ITEM ON THE STUDENT
SOCIO-METRIC QUESTIONNAIRE (SSQ₁) BY TEACHER ETHNICITY

Variables	Black Teachers				White Teachers			
	MS	Error	F-Ratio	P	MS	Error	F-Ratio	P
32	2.5599	.8840	2.90		7.7495	.7970	9.72***	.005
33	1.8858	1.7614	1.07		2.7966	1.0055	2.78	
34	5.5265	1.1214	4.93*	.055	.3563	.4832	.74	
35	.8889	1.0590	.84		1.5296	.4850	3.15*	.086
36	5.2272	1.6911	3.09		3.3544	.7788	4.31**	.048
37	.0254	1.2799	.02		3.4307	2.3435	1.46	
38	1.9028	.6294	3.02		9.3733	.4646	20.18***	.000
39	5.7020	2.1966	2.60		5.1849	.6362	8.15***	.009
40	7.8704	3.9461	1.99		2.0327	.4187	4.85**	.036

* = .10
 ** = .05
 *** = .01

a single group, produced significant differences on eight of the nine variables of the SSQ_1 . Four of these were significantly greater for WTP, three for BTP, and one interaction between teacher and pupil ethnicity was statistically significant. White pupils received more nominations on the following measures: "read the lesson aloud" ($p < .01$); "you did a fine job" ($p < .05$); "no one else knows so will you give the answer" ($p < .01$); "who is the best student" ($p < .01$); and "who does the teacher call on most often" ($p < .05$). Not only did students indicate that WTP were told they did a fine job more often than BTP but it happened significantly more often in Black teachers' classes than all other classes. This difference was significant at $p < .05$. Black pupils, by comparison, were told to "sit up and pay attention" ($p < .10$), "to erase the chalkboard" ($p < .10$), and did "poor work in class" ($p < .01$) more often than White pupils. These findings are presented in Table 37, and described graphically in Figure 21. Therefore, Hypothesis 8 was rejected for White and total junior high, but accepted for Black junior high teachers.

Table 38 reports the mean scores and standard deviations of junior high teachers on the SSQ_2 . Results of the analyses of variance of the number of Black and White pupils nominated for the several variables of the SSQ in classes taught by Black and White teachers are presented in Tables 39 and 40. These data show that the number of White pupils

TABLE 37

SUMMARY OF ANALYSIS OF VARIANCE OF JUNIOR HIGH TEACHERS' MEAN SCORES ON THE
NUMBER OF TARGETED PUPILS NOMINATED PER ITEM ON THE STUDENT SOCIOMETRIC
QUESTIONNAIRE (SSQ₁) BY TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
32	.0095	.01		10.2950	12.55***	.002	.0144	.02	
33	.5120	.53		4.6055	3.82*	.057	.0769	.06	
34	.6131	.84		3.0722	4.70**	.036	2.8106	4.30**	.044
35	.0074	.01		2.3979	3.76*	.059	.0206	.03	
36	.3776	.41		7.6465	7.48***	.010	.9351	.92	
37	.2773	.17		2.2075	1.07		1.2486	.61	
38	.4111	.54		11.0698	21.77***	.000	.2063	.41	
39	.0065	.01		10.2197	9.71***	.004	.6672	.63	
40	2.5564	1.35		7.2713	5.35**	.026	2.6318	1.94	

* = .20

** = .05

*** = .01

Figure 21

Significant Differences In Pupils' Perceptions of How Much Opportunities (SSQ₁) BTP and WTP Have for Verbal Interaction with Junior High Teachers in Terms of "Who Reads Aloud" (1), "Who is asked to sit up" (2), "Who did a fine job" (3), "Who erases the Chalkboard" (4), "Who answers when no one else can" (5), "who does poor work" (7), "who is the best student" (8), and "Who is called on most often by teachers" (9).

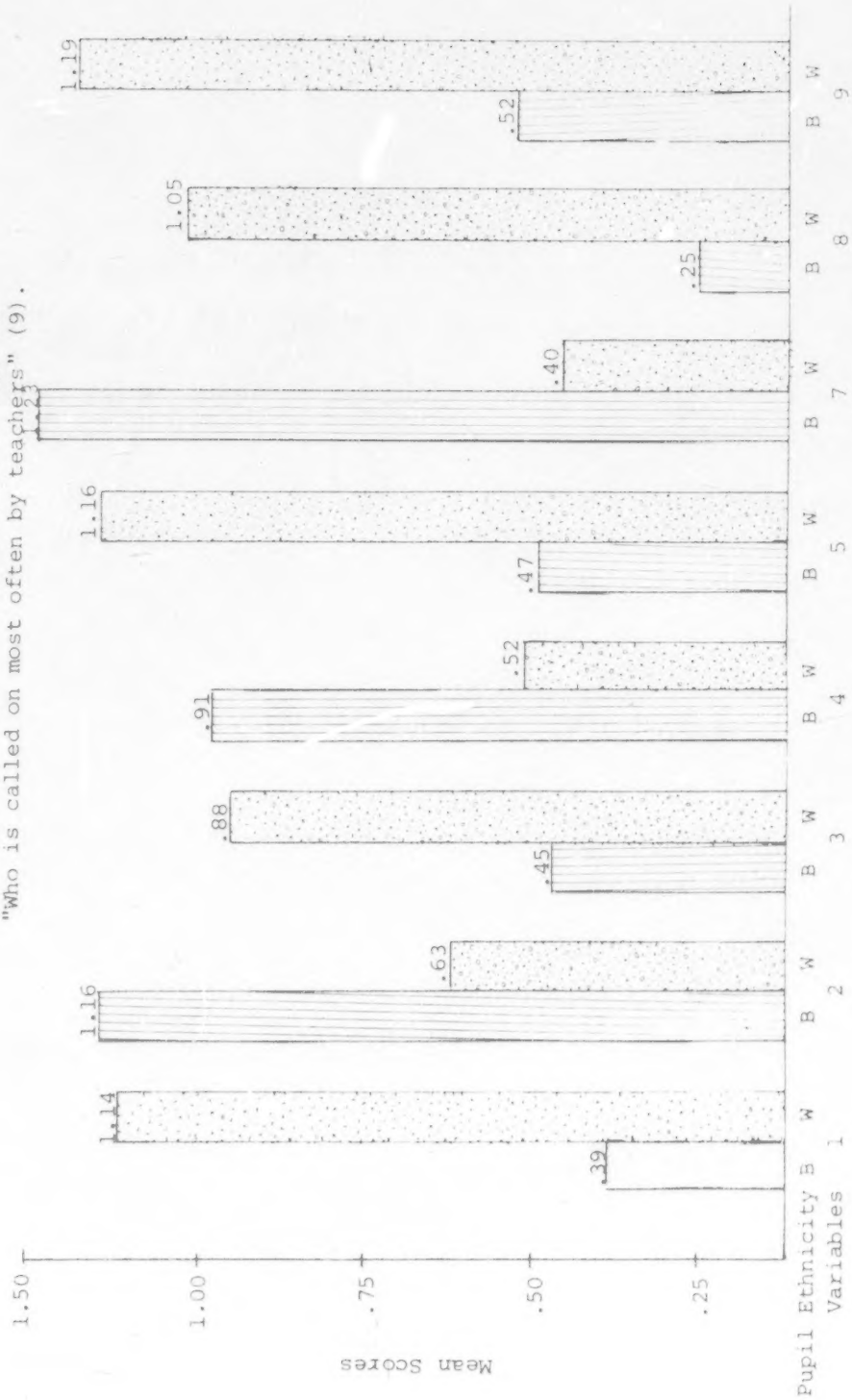


TABLE 38
COMPARISON OF MEAN SCORES AND STANDARD DEVIATION SCORES OF
JUNIOR HIGH SCHOOL TEACHERS ON THE VARIABLES OF SSQ_2

Variables	Black Teachers (n=9)				White Teachers (n=23)				Total Teachers (n=32)			
	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD	$\bar{X}_{BTP}$	SD	$\bar{X}_{WTP}$	SD
41	.14	.20	.31	.31	.23	.35	.52	.58	.19	.32	.46	.52
42	.43	.25	.30	.21	.42	.32	.44	1.15	.43	.30	.40	.98
43	.18	.18	.39	.33	.31	.24	.37	.32	.28	.23	.38	.31
44	.35	.31	.23	.18	.41	.34	.46	.85	.40	.33	.40	.73
45	.25	.21	.40	.30	.33	.33	.34	.33	.30	.30	.36	.32
46	.47	.25	.29	.27	.48	.36	.39	.34	.48	.33	.36	.33
47	.51	.30	.17	.20	.67	1.12	.44	1.14	.63	.96	.37	.98
48	.11	.17	.31	.34	.26	.33	.46	.57	.22	.30	.42	.52
49	.25	.26	.31	.30	.27	.25	.31	.22	.27	.25	.31	.25

TABLE 39
SUMMARY OF ANALYSIS OF VARIANCE OF JUNIOR HIGH TEACHERS' MEAN SCORES OF THE
NUMBER OF TARGETED PUPILS NOMINATED PER ITEM ON THE STUDENT SOCIOMETRIC
QUESTIONNAIRE (SSQ₂) BY TEACHER ETHNICITY

Variables	MS	Error	F-Ratio	P	MS	Error	F-Ratio	P
41	.1368	.0170	8.05**	.021	1.0705	.0908	11.79***	.003
42	.0738	.0435	1.70		.0027	.4833	.01	
43	.1867	.0617	3.03		.0429	.1175	.37	
44	.0624	.0356	1.75		.0239	.2228	.11	
45	.1038	.0329	3.15		.0041	.0850	.05	
46	.1495	.0747	2.00		.0861	.0657	1.31	
47	.5225	.0786	6.65**	.032	.6104	.0680	8.97***	.007
48	.1892	.0766	2.47		.4409	.0888	4.96**	.035
49	.0138	.0480	.29		.0158	.0653	.24	

* = .10

** = .05

*** = .01

TABLE 40

SUMMARY OF ANALYSIS OF VARIANCE OF JUNIOR HIGH TEACHERS' MEAN SCORES ON THE
NUMBER OF TARGETED PUPILS NOMINATED PER ITEM ON THE STUDENT SOCIOMETRIC
QUESTIONNAIRE (SSQ₂) BY TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between Teacher Ethnic Groups			Between Targeted Pupils Ethnic Groups			Teacher Ethnic Group Pupil Ethnic Group		
	MS	F	P	MS	F	P	MS	F	P
41	.2667	.84		1.1520	16.19***	.001	.0553	.78	
42	.0526	.07		.0100	.03	.001	.0665	.18	
43	.0413	.74		.1638	1.60		.0658	.64	
44	.2673	.53		.0000	.00		.0862	.50	
45	.0014	.01		.0508	.71		.0571	.80	
46	.0465	.29		.2059	3.03*	.089	.0297	.44	
47	.6133	.32		1.0935	15.43***	.001	.0394	.56	
48	.2969	1.02		.6298	7.36***	.011	.0003	.00	
49	.0039	.06		.0284	.47		.0011	.02	

* = .10

** = .05

*** = .01

named by their classmates as the ones who were asked to read the lesson aloud were larger than the number of Blacks in both Black and White teachers' classes. Comparatively, a greater number of Blacks were said to do poor work in all classes and more Whites were chosen as best students in White teachers' classes. Two-way interaction analyses of variance of pupil perceptions of the number of pupils participating in classroom interactions revealed similar results. In addition to "who does poor work" ($p < .01$), more Blacks were also selected as those pupils who didn't get to say much in class ($p < .10$). Again more White pupils were chosen to read aloud ($p < .01$) and as best students ($p < .01$). These findings are described further in Figure 22.

Senior High Teachers

The mean scores and standard deviations of senior high teachers' on the SSQ₁ are presented in Table 41, and the data resulting from the analyses of variance of these scores are detailed in Table 42 and Figure 23. Differences on three of the measures were statistically significant. These measures were: "no one else knows the answer so will you give it" ($p < .05$); "who is the best student in class" ($p < .05$); and "who doesn't get to say much in class" ($p < .10$). On the first two White pupils received significantly more nominations, while Black pupils received more nominations on the third measure. All other measures on the SSQ₁ instrument yielded non-significant differences for senior high school teachers. However, the three

Figure 22

Significant Differences in Pupils' Perceptions of the Number of Targeted Pupils (SSQ₂) who Received Opportunities for Verbal Interaction with Junior-High Teachers in Terms of "Who reads aloud" (1), "Who doesn't say much" (6), "who does poor work" (7), "and Who is the best student" (8).

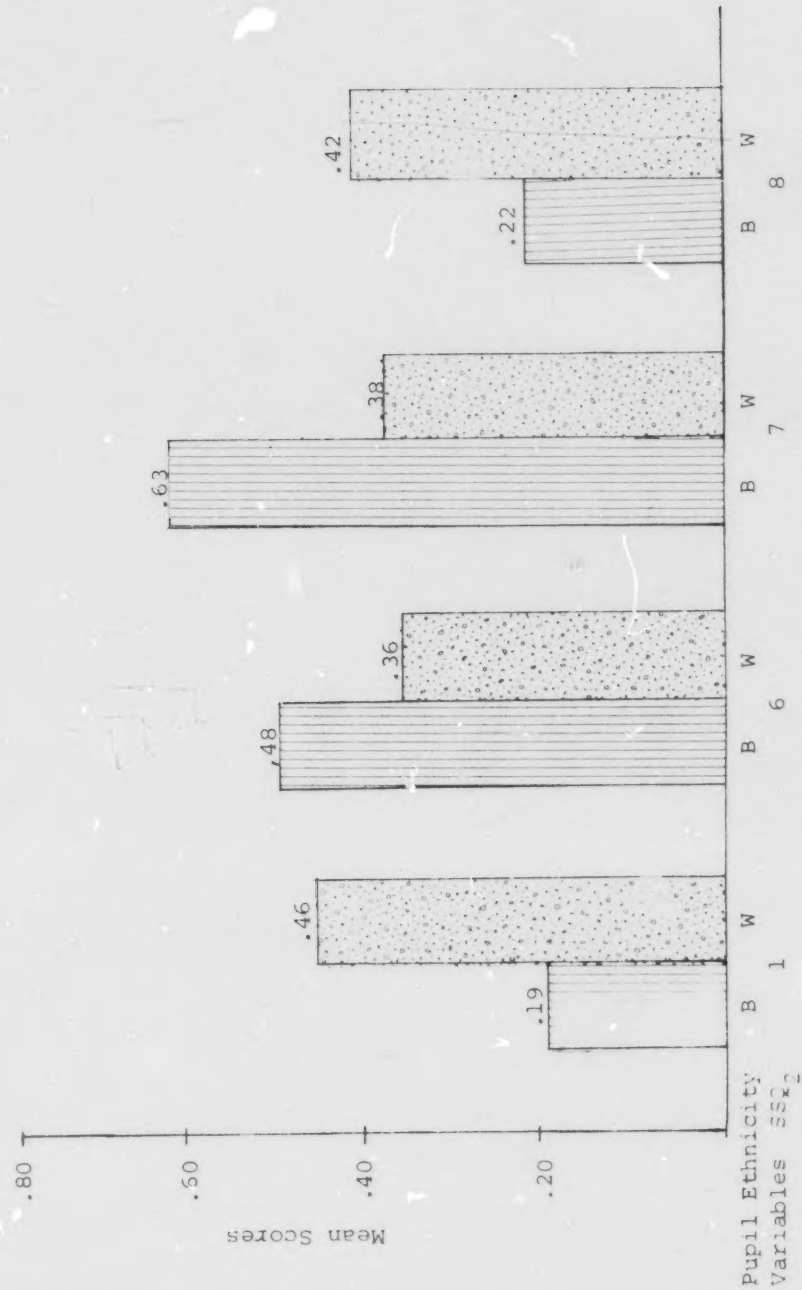


TABLE 41

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION
 SCORES OF HIGH SCHOOL TEACHERS BY TARGETED
 PUPILS ON THE VARIABLES OF THE SSQ₁
 (n=22)

Variables	Black Targeted Pupils		White Targeted Pupils	
	$\bar{X}$	SD	$\bar{X}$	SD
32	.45	1.17	.32	.64
33	.76	.89	.93	2.11
34	.43	.46	.76	1.14
35	.27	.42	.46	.67
36	.17	.26	.66	.85
37	.70	.67	.35	.43
38	.74	1.04	.43	.76
39	.15	.23	.79	1.08
40	.31	.43	.55	.74

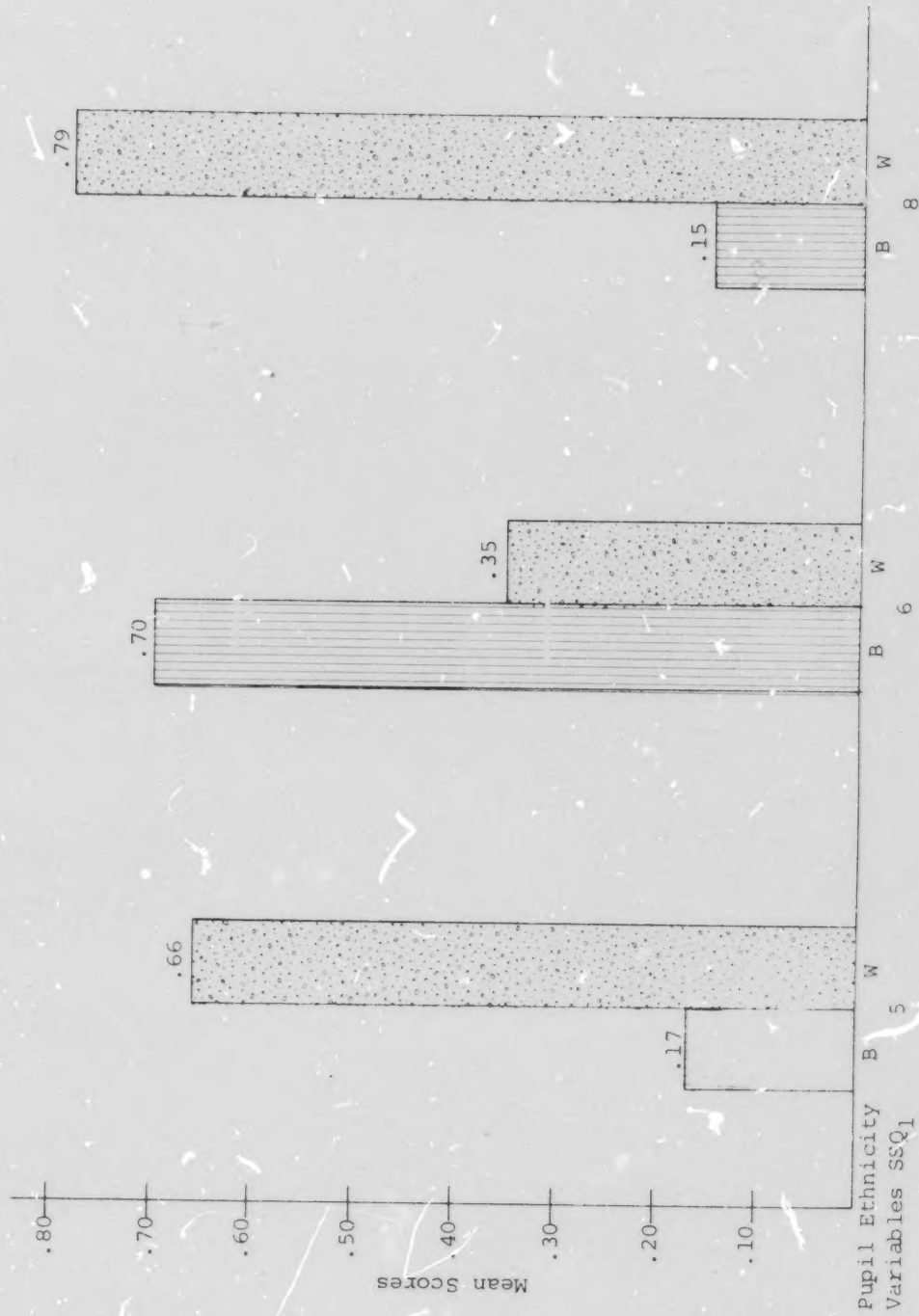
TABLE 22

SUMMARY OF ANALYSIS OF VARIANCE OF SENIOR HIGH TEACHERS'
 MEAN SCORES OF THE NUMBER OF TARGETED PUPILS NOMINATED
 PER ITEM ON THE STUDENT SOCIOMETRIC QUESTIONNAIRE
 (SSQ₁) BY TEACHER ETHNICITY

Variables	MS	Error	F-Ratio	P
32	.1791	1.0478	.17	
33	.3045	2.4349	.13	
34	1.1414	.8127	1.41	
35	.3938	.3194	1.23	
36	2.5658	.4036	6.36**	.019
37	1.3072	.3389	3.86*	.051
38	1.0492	.6786	1.55	
39	4.2768	.6444	6.64**	.017
40	.6015	.4947	1.22	

Figure 23

Significant Differences in Pupils' Perceptions of How Much Opportunity (SSQ₁) BTP and WTP Have For Verbal Interaction with Senior High Teachers in Terms of "Who answers when no one else can" (5), "Who doesn't say much" (6), and "Who is the best student" (8)



significant differences were enough to reject Hypothesis 8 relative to pupils' perceptions of pupil-teacher interaction in social studies classes taught by White high school teachers.

Senior high school teachers' mean scores and the results from the analyses of variance of the SSQ₂ are summarized in Tables 43 and 44, and Figure 24 respectively. These data indicate that more White pupils were named to read the lesson aloud ($p < .05$), and as the best students ($p < .01$) more often than Black pupils. All other variables on this instrument were non-significant.

Total Teachers

In addition to analyzing pupils' perceptions of pupil-teacher interactions by school levels and teacher ethnicity within each of these categories, three-way analyses of variance were conducted for all teachers scores on the SSQ₁ and SSQ₂. Tables 45-48 and Figures 25 and 26 summarize these data. Only one significant finding was obtained on the interaction between pupil ethnicity and teacher ethnicity. However, seven significant differences occurred on the SSQ₁ when all teachers were treated as one group, without regard to school level or teacher ethnicity. As Table 46 and Figure 25 illustrate two of these favored Blacks and five were advantageous to White pupils. Black pupils were asked more often to erase the chalkboard and did poor work more frequently than White pupil. Those variables on which White pupils scored higher than Blacks were: read the

TABLE 43

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION
 SCORES OF HIGH SCHOOL TEACHERS BY TARGETED
 PUPILS ON THE VARIABLES OF THE SSQ₂
 (n=22)

Variables	Black Targeted Pupils		White Targeted Pupils	
	$\bar{X}$	SD	$\bar{X}$	SD
41	.11	.14	.12	.18
42	.35	.37	.23	.28
43	.27	.27	.27	.25
44	.17	.25	.23	.26
45	.12	.14	.27	.28
46	.36	.34	.23	.24
47	.31	.29	.21	.32
48	.11	.16	.24	.22
49	.16	.21	.24	.25

TABLE 44

SUMMARY OF ANALYSIS OF VARIANCE OF SENIOR HIGH TEACHERS'
 MEAN SCORES OF THE NUMBER OF TARGETED PUPILS NOMINATED
 PER ITEM ON THE STUDENT SOCIOMETRIC QUESTIONNAIRE
 (SSQ₂) BY TEACHER ETHNICITY

Variables	MS	Error	F-Ratio	P
41	.0005	.0244	.02	
42	.1374	.0990	1.32	
43	.0004	.0573	.01	
44	.0329	.0733	.45	
45	.2442	.0423	5.77**	.025
46	.1921	.0975	1.97	
47	.0923	.0816	1.13	
48	.1804	.0222	8.12***	.010
49	.0567	.0640	.87	

Figure 24

Significant Differences in Pupils' Perceptions of the Number of Targeted Pupils (SSQ_2) Who Received Opportunities for Verbal Interactions with Senior High Teachers in Terms of "Who answers when no one else can" (5), and "Who is the best student" (8)

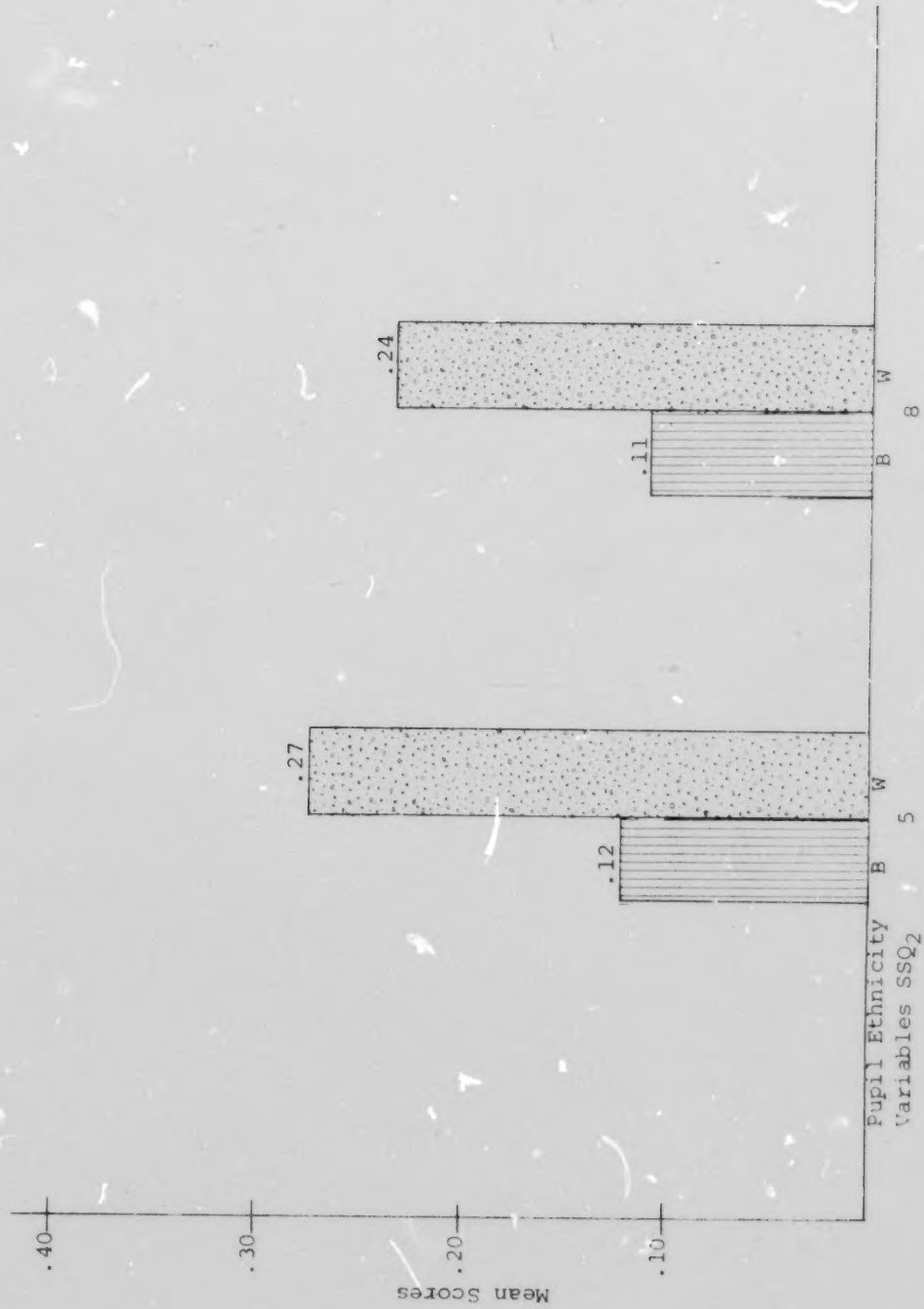


TABLE 45

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION
 SCORES OF TOTAL TEACHER SUBJECTS BY TARGETED
 PUPILS ON THE VARIABLES OF THE SSQ₁
 (n=74)

Variables	Black Targeted Pupils		White Targeted Pupils	
	$\bar{X}$	SD	$\bar{X}$	SD
32	.36	.76	.94	1.05
33	1.06	1.10	.92	1.41
34	.47	.49	.88	1.02
35	.76	.88	.56	.60
36	.34	.41	1.05	1.15
37	.86	1.21	.59	.73
38	1.06	1.02	.46	.74
39	.26	.31	1.08	1.34
40	.42	.48	1.03	1.32

TABLE 46

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENTARY AND JUNIOR HIGH TEACHERS' MEAN
 SCORES OF THE NOMINATIONS TARGETED PUPILS RECEIVED ON THE STUDENT
 SOCIO-METRIC QUESTIONNAIRE (SSQ₁) BY SCHOOL LEVEL, TEACHER
 ETHNICITY, AND PUPIL ETHNICITY

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
32	A	.021	.03		C	12.551	16.64***	.000
	B	.000	.00		AC	.080	.11	
	AB	.013	.02		BC	.088	.12	
33					ABC	.025	.05	
	A	1.350	1.28		C	1.0350	.79	
	B	.055	.05		AC	.055	1.34	
34	AB	1.121	1.06		BC	1.121	.11	
					ABC	1.056	.00	
	A	.002	.00		C	3.748	7.58***	.008
	B	.047	.07		AC	.520	1.05	
	AB	.469	.66		BC	.194	.39	
					ABC	2.214	4.48**	.037

* = .10
 ** = .05
 *** = .01

TABLE 46 (cont'd)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
35	A	.765	1.12		C	2.852	4.86**	.031
	B	.057	.08		AC	.000	.00	
	AB	.020	.03		BC	.138	.24	
					ABC	.043	.07	
36	A	.262	.30		C	10.443	11.83***	.002
	B	.002	.00		AC	.014	.02	
	AB	.444	.50		BC	.008	.01	
					ABC	1.046	1.19	
37	A	.107	.09		C	.824	.57	
	B	.153	.13		AC	.005	.00	
	AB	.046	.04		BC	.009	.01	
					ABC	1.418	.98	
38	A	.014	.02		C	8.949	12.81***	.001
	B	.196	.22		AC	.049	.07	
	AB	.087	.10		BC	.034	.05	
					ABC	.500	.72	

* = .10
 ** = .05
 *** = .01

TABLE 46 (cont'd)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
39	A	.277	.23		C	12.928	13.00***	.001
	B	.321	.27		AC	.015	.02	
	AB	.434	.36		BC	.001	.00	
					ABC	.945	.95	
40	A	.469	.34		C	13.137	12.33***	.001
	B	.691	.49		AC	.000	.00	
	AB	1.017	.73		BC	.870	.82	
					ABC	.873	.82	

* = .10
 ** = .05
 *** = .01

Figure 25

Significant Differences in Pupil Perceptions of How Much Opportunities (SSQ) BTP and WTP Have for Verbal Interactions with all teachers in terms of "who reads aloud" (1), "who does a fine job" (3), "Who erases the Chalkboard," (4), "Who answers when no one else can" (5), "Who does poor work" (7), "who is the best student in class" (8), and "who is called on most often by teachers" (9).

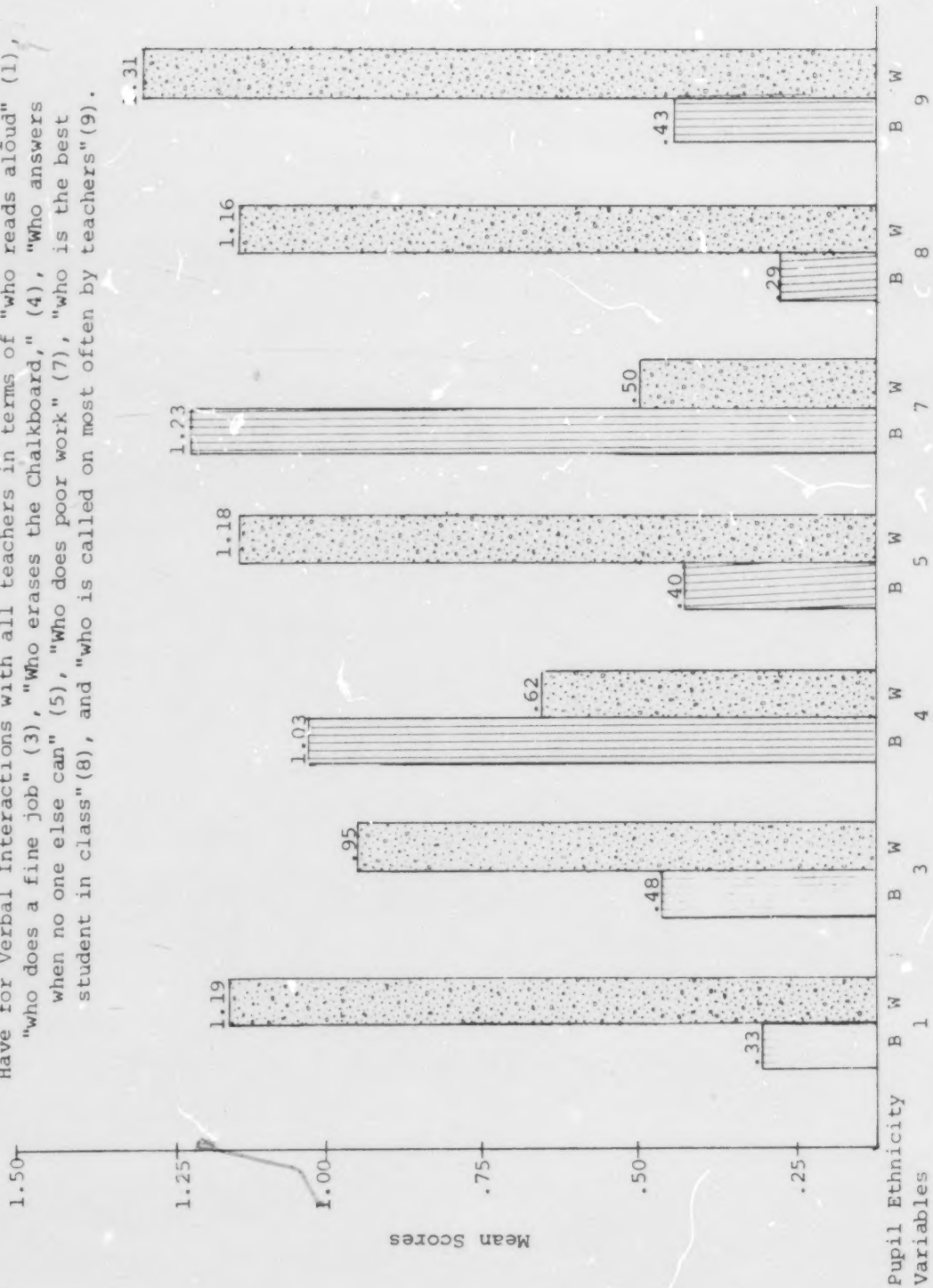


TABLE 47

COMPARISON OF MEAN SCORES AND STANDARD DEVIATION
 SCORES OF TOTAL TEACHER SUBJECTS BY TARGETED
 PUPILS ON THE VARIABLES OF THE SSQ₂
 (n=74)

Variables	<u>Black Targeted Pupils</u>		<u>White Targeted Pupils</u>	
	$\bar{X}$	SD	$\bar{X}$	SD
41	.18	.25	.34	.40
42	.39	.31	.37	.68
43	.30	.25	.35	.28
44	.35	.30	.35	.52
45	.25	.26	.34	.30
46	.43	.32	.33	.29
47	.45	.68	.30	.68
48	.21	.27	.36	.40
49	.22	.23	.31	.25

lesson aloud; you did a fine job on your report; no one else knows the answer so will you give it; who are the best students; and who was called on the most in class. Not only were WTP identified more often as those pupils who were told they did a fine job in general, this difference occurred significantly more often in classes taught by Black teachers than in all other classes. Therefore, Hypothesis 8 was rejected for all teachers since significant differences between pupils' perceptions of BTP and WTP participation in classroom interaction did occur.

The differences in the number of BTP and WTP nominated for four of the items on the SSQ₂ were statistically significant. These were "read the lesson aloud," "who is the best student" "who is called on most often," and "who does poor work." White pupils scored highest on the first three and Black pupils on the fourth item. These findings are reported in Table 48 and detailed graphically in Figure 26.

Testing Sub-hypotheses Derived from the SSQ

Each of the nine sub-hypotheses of the SSQ, all of which was derived from the variables of that instrument and identified specific kinds of opportunities for pupil-teacher interactions, was tested separately for all of the subgroups of the research population. Table 49 presents these hypotheses in summary and indicates if they were accepted or rejected for each ethnic and school level subgroup, as well as for the total number of the research

TABLE 48

SUMMARY OF ANALYSIS OF VARIANCE OF ELEMENARY AND JUNIOR HIGH TEACHERS' MEAN SCORES OF THE NUMBER OF TARGETED PUPILS NOMINATED PER ITEM ON THE STUDENT SOCIO-METRIC QUESTIONNAIRE (SSQ2), BY SCHOOL LEVEL, TEACHER ETHNICITY AND PUPIL ETHNICITY

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
41	A	.063	.29		C	.771	11.79***	.002
	B	.000	.00		AC	.013	.20	
	AB	.357	1.63		BC	.007	.10	
42	A	.001	.00		ABC	.036	.55	
	B	.086	.18		C	.006	.03	
	AB	.001	.00		AC	.023	.09	
43	A	.137	1.58		BC	.080	.32	
	B	.000	.00		ABC	.000	.00	
	AB	.051	.76		C	.051	.66	
					AC	.103	1.32	
					BC	.006	.07	
					ABC	.138	1.76	

* = .10

** = .05

*** = .01

TABLE 48 (cont'd.)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
44	A	.108	.32		C	.021	.17	
	B	.065	.19		AC	.000	.00	
	AB	.116	.34		BC	.007	.06	
45					ABC	.063	.52	
	A	.001	.01		C	.183	2.53	
	E	.009	.08		AC	.005	.08	
	AB	.020	.17		BC	.023	.32	
46					ABC	.015	.21	
	A	.045	.32		C	.145	2.40	
	B	.117	.84		AC	.031	.51	
	AB	.009	.05		BC	.007	.11	
47					ABC	.013	.22	
	A	.275	.22		C	.661	11.44***	.002
	B	.105	.09		AC	.136	2.36	
	AB	.333	.27		BC	.128	2.22	
					ABC	.017	.29	

* = .10
 ** = .05
 *** = .01

TABLE 48 (Cont'd.)

Variables	Between-Subjects Variance				Within-Subjects Variance			
	Source	Mean Square	F-Ratio	P	Source	Mean Square	F-Ratio	P
48	A	.060	.27		C	.366	4.65**	.034
	B	.097	.43		AC	.050	.64	
	AB	.099	.44		BC	.000	.00	
					ABC	.000	.00	
49	A	.011	.16		C	.223	4.49**	.037
	B	.002	.03		AC	.085	1.64	
	AB	.014	.20		BC	.000	.01	
					ABC	.003	.06	

* = .10

** = .05

*** = .01

A = School Level

B = Teacher Ethnicity

C = Pupil Ethnicity

Figure 26

Significant Differences in Pupils' Perceptions of the Number of Targeted Pupils (SSQ₂) Who Received Opportunities for Verbal Interaction with All Teachers in Terms of "Who reads aloud" (1), "Who does poor work" (7), "Who is the best student" (8), and "Who is called on most often by teachers" (9).

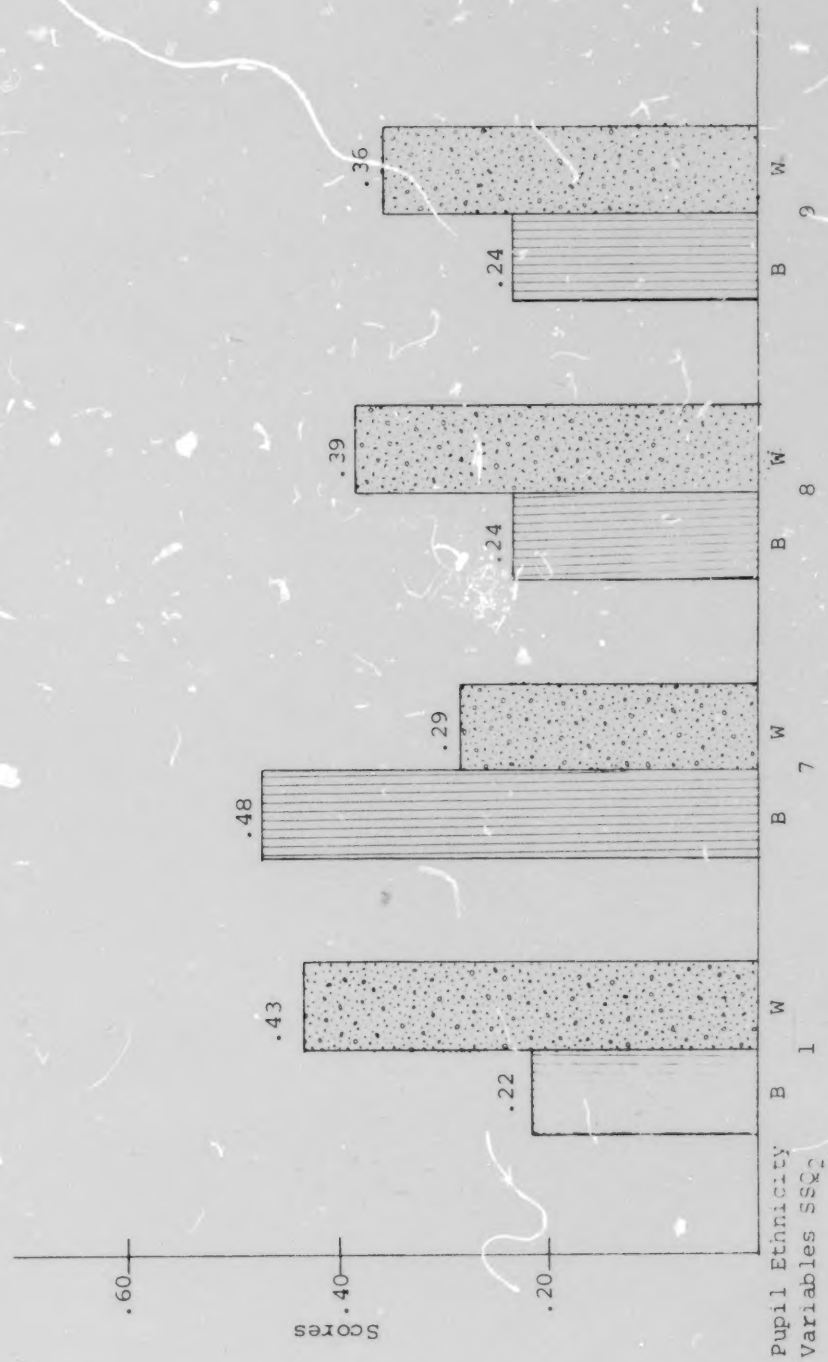


TABLE 49 (continued)

Variables	Elementary			Junior High			Senior High	Total Teachers		
	BT	WT	TT	BT	WT	TT		ET	WT	TT
SSQ ₂ **										
8:41	Rj	Rj	Rj	Rj	Rj	Rj	AC	AC	AC	Rj
8:42	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
8:43	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
8:44	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
8:45	AC	AC	AC	AC	AC	AC	Rj	AC	AC	AC
8:46	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
8:47	Rj	AC	AC	Rj	Rj	Rj	AC	AC	AC	Rj
8:48	Rj	AC	AC	AC	Rj	Rj	Rj	AC	AC	Rj
8:49	AC	Rj	Rj	AC	AC	AC	AC	AC	AC	Rj

AC = Hypothesis Accepted

Rj = Hypothesis Rejected

*See Appendix E for more details on these variables.

**The names of the variables are not repeated since they are the same for the SSQ₂ and for the SSQ₁. The differences occurred in the nature of the statistical analyses conducted. Whereas the SSQ₁ emphasized "nominations targeted pupils received," the SSQ₂ emphasized "number of targeted pupils nominated."

population. Six of the same hypotheses were consistently rejected for elementary, junior high, and total teacher populations. When treated as a single group, a total of six hypotheses were rejected for all elementary, eight for junior high, three for senior high, and seven for all teachers. Among the hypotheses most frequently rejected for teachers, especially elementary, junior high and total teachers, were "who gets to read the lesson aloud," "who did a fine job on their reports," "who was asked to give the answers to questions when no one else knew it," "who does poor work in class," "who is the best student," and "who was called on most often by teachers." These rejections were based on the fact that significant differences were obtained in the analyses of variance of pupils' perceptions of Black and White pupils' opportunities to participate in classroom interactions with Black and White teachers on all of these variables.

Table 49 also shows which hypotheses were rejected and accepted as to the number of Black and White pupils who were most likely to have opportunities to engage in pupil-teacher interactions, as defined by the items on the SSQ. Sub-hypotheses 8:41 and 8:49 were consistently rejected for all groups of teachers, with the exception of senior high teachers. These findings suggest that the differences in the number of Black and White pupils nominated for these two items were statistically significant. When teachers were considered as single groups without respect to ethnic

identity, two hypotheses were rejected for elementary, four for junior high, two for senior high, and four for all teachers.

Summary of Findings

This chapter has reported the results of the analyses of variance of pupil-teacher interactions in desegregated social studies classes, as measured by observational data, teachers' estimates, and pupils' perceptions. These data indicated that Black and White, and elementary, junior and senior high, teachers do interact differentially with Black and White students in the same classrooms in terms of specific kinds of verbal behaviors. Black teachers tended to create more discipline and direct contacts, ask more self-reference questions, offer more "no feedback" responses and "ask others" terminal feedback, received more wrong answers from pupils, and engaged in more positive behavioral contacts with pupils. In comparison White teachers initiated more procedural contacts and offered more positive feedback than Black teachers. Elementary teachers, when considered as a total group independent of ethnic identity, created more direct contacts, positive feedback, repeating questions sustaining feedback, and "ask others" terminal feedback. They also received more pupil-initiated procedural contacts and engaged in more positive behavioral contacts with pupils. More pupil-pupil interactions occurred in the elementary schools than in the junior or senior high schools. Junior high teachers tended to give less feedback of any

kind to pupils' responses than did any other teachers. Generally White pupils received significantly more open contacts, positive feedback, call-out public response opportunities, process questions, and gave more correct responses than Black pupils. Comparatively, Black pupils offered more wrong responses, received more discipline contacts and teacher-afforded procedural and work contacts than White pupils.

Pupils' perceptions of pupil-teacher interactions also tended to be significantly different for Black and White pupils in social studies classes taught by Black and White teachers. Significant differences favoring White pupils occurred on such measures as "who reads the lesson aloud," "who did a fine job on reports," "who answers questions when no one else can," "who is the best student," and "who is called on most often by teachers." These occurrences persisted across school levels and teacher ethnic groups. Black pupils were identified as the students most often asked "to erase the chalkboard," "to sit up and pay attention," who "didn't get to say much in class," and who "did poor work in class". For the most part these behaviors were ascribed by students in junior and senior high schools.

Although observed pupil-teacher interactions and pupils' perceptions of teachers' verbal behaviors produced significant differences for Black and White pupils, the contrary was true for teachers' estimates of pupil-teacher interactions.

No significant differences occurred in any of the teachers' estimates of the extent of Black and White pupils' participation in classroom activities. However, junior and senior high White teachers estimated the quality of White pupils' interactions to be significantly better than that of Black pupils. This was also true for all junior high teachers and total teacher subjects, when these two groups were treated without regard for the ethnic identity of the teachers.

Chapter IV presents the results of the correlational analyses of observed teacher verbal behaviors with teachers' estimates and pupils' perceptions of pupil-teacher interactions. Results of these analyses are reported for all ethnic (Black and White) and school level (elementary, junior high, and senior high, and total) subgroups of the total population participating in this research investigation.

CHAPTER IV

RESULTS: CORRELATIONAL ANALYSES

Introduction

Correlational analyses of data obtained from each of the four instruments used in this study (the DIS, TEE, TEQ, and SSQ) were computed for each subgroup of the total research population. The results of these analyses are presented in this chapter. They are reported by teacher ethnic groups and by school levels for Black and White pupils. Therefore, eight sets of relationships are explored in each set of correlational analyses. The first set include correlational findings of Black, White and total elementary teachers' verbal interactions with Black targeted pupils (BTP) and White targeted pupils (WTP) respectively on all of the instruments. The other sets of data, in sequential order, include similar data for junior high, senior high, and total teacher populations (teachers from all school levels combined and treated as a single group). Since two of the measurement instruments, the DIS and the SSQ, were composed of several variables, the correlations were computed by individual variables as opposed to treating the instruments as single entities. Because

of the complexities and the sheer volume of the data which resulted from the correlational analyses, no attempt is made, in reporting the results, to comment on each of the significant correlations. Rather, commentary is limited primarily to examples of correlations which tended to persist throughout several analyses, and were illustrative of correlational patterns established across experimental groups.

The findings which resulted from the correlational analyses were used to test major Hypothesis 9 (see Chapter I), relative to each of the experimental groups. This hypothesis postulated that there are no significant correlations between observed teacher verbal behavior, teachers' estimates, and pupil perceptions of pupil-teacher verbal interactions in desegregated social studies classes.

Correlational Analyses for Elementary Teachers

Tables 50-54 report the results of the correlational analyses of elementary Black teachers' verbal interactions with Black and White pupils. There were no significant correlations between Black teachers' estimates of the frequency (TEE) and quality (TEQ) of pupil participation for either Black (see Table 51) or White pupils (see Table 53). However, a number of significant correlations between the other instruments were obtained. Table 50 shows that twelve of the variables on the DIS correlated significantly with the TEE, two with the TEQ, and seven with the SSQ for

TABLE 50

SIGNIFICANT CORRELATIONS BETWEEN BLACK ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH BLACK
TARGETED PUPILS (BTP)
(n=4)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
3	-.99***				5	-.97*
4			5	.99***		
6		.97*	6	-1.00***		
7	-.96*				5	-.96*
8	.98**		6	.97*		
9			9	-.95*	9	-.98**
10	-.99***					
11			7	.98**		
12	-1.00***		2	-.98**		
13	.99***					
14	1.00***					
19			5	.99***		
22	-.99***					
23	.99***					
24	-.99***					
25	.99***					
26		.97*			3	-.97*
27	-.98**					
28					9	.98**
29					9	-.98**

* = .05

** = .02

*** = .01

TABLE 51

SIGNIFICANT CORRELATIONS BETWEEN BLACK ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH BLACK
TARGETED PUPILS (BTP)
(n=4)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	-	2	.99***	-	
TEQ		1	-1.00***	1	-.97*
		6	-1.00***	2	.99***
		8	.97*	4	-.97*
				5	.99***
				6	-.97*
				7	.97*

* = .05
** = .02
*** = .01

TABLE 52

SIGNIFICANT CORRELATIONS BETWEEN BLACK ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEF, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH WHITE
TARGETED PUPILS (WTP)
(n=4)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
2			2	-.96*		
			7	-.99***		
3			3	.96*	3	1.00***
			6	.96*	5	.99***
					7	.98*
5		1.00***	3	-.99***	3	-.95*
			5	-.95*	5	-.96*
					6	-.99***
					7	-.98**
6		-1.00***	3	.98**	7	.96*
			8	.98**		
8			3	-.95*	7	-.96*
			6	-.96*		
			8	-1.00***		
10			7	.97*		
11	.99***					
12	-.99***					
13	.99***					
14	.99***					
16	.99***				4	.96*

* = .05
** = .02
*** = .01

TABLE 52 (Cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
17	.99***					
19			7	.97*		
22		-1.00***	3	.99***	6	.98**
			8	.96*	7	.97*
23		1.00***	3	-.99***	6	-.98**
			8	-.96*	7	-.97*
24			1	-.97*	4	-.95*
			5	-.98**	6	-.95*
			9	-.98**	9	-.98**
25			1	.97*	4	.95*
			5	.98**	6	.95*
			9	.98**	9	.98**
26		.97*				
27			2	.97*		
			6	.99***		
28	.98**					
29	-.98**					

* = .05
 ** = .02
 *** = .01

TABLE 53

SIGNIFICANT CORRELATIONS BETWEEN BLACK ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH WHITE
TARGETED PUPILS (WTP)
(n=4)

Instrument	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEF	-	-		4	1.00***
				9	.99***
TEQ		3	-.98**	5	-.97*
		5	-.95*	6	-.96*
		9	-.95*	8	.97*

* = .05

** = .02

*** = .01

TABLE 54

SIGNIFICANT CORRELATIONS BETWEEN BLACK ELEMENTARY TEACHERS' MEAN SCORES ON THE VARIABLES OF THE SSQ_1 AND SSQ_2 MEASURES OF PUPIL-TEACHER INTERACTION WITH BLACK TARGETED PUPILS (BTP) AND WHITE TARGETED PUPILS (WTP)
(n=4)

Black Targeted Pupils			White Targeted Pupils		
SSQ_1	SSQ_2	r	SSQ_1	SSQ_2	r
1	1	.95*	3	3	.96*
	5	-.99***		5	.96*
	6	.95*		7	.96*
8	1	-1.00***		8	1.00***
	6	-1.00***	5	6	.98**
9	9	.99***	6	3	.95*
			8	7	.95*
			9	7	.98**
				6	.98*

* = .05

** = .02

*** = .01

Black teachers with Black pupils in elementary schools. Among others the TEE correlated negatively with observed open contacts (3)*, choice questions (7), teacher-afforded work contacts (24), and positively with self-reference questions (8), teacher praise (13), and pupil-created procedural contacts (25). The most prominent correlations were those which occurred between the TEQ and three items of the SSQ: "who reads aloud" (1); "who doesn't say much" (6); and "who is the best students" (9). The first two were negatively correlated while the third one was positive.

Several significant correlations between elementary Black teachers' verbal interactions with WTP were also apparent. Among the most notable were observed pupil-created and teacher-afforded work contacts (variables 24 and 25 of the DIS) with variables 1, 5, and 9 of the SSQ. Specifically, these SSQ variables were: "who reads aloud," "who answers when no one else can," and "who is called on most often." Variable 3 of the SSQ, "you did a fine job," correlated with six items of the DIS: open contacts (3), process questions (5), product questions (6), self-reference questions (8), "ask new questions" sustaining teacher feedbacks (22), and pupil-created work contacts (23). These

*The numbers in parenthesis represent the different variables of the measurement instruments as they appear in the various tables which report the results of the correlational analyses. This format is used consistently in reporting the correlational analysis as a means of helping the reader to associate the variable number code with the translated meaning of that code.

data are reported in Table 52. It also indicates that several other variables of the DIS correlated with more than one variable of the SSQ. According to the information presented in Table 53 significant correlations, all of which were negative, occurred between Black elementary teachers' and WTP's interactions, as measured by the TEQ and the same three items of the SSQ with which DIS₂₄ and 25* were correlated. Some significant correlations were also obtained between the nominations BTP and WTP received (SSQ₁) and the number of pupils nominated (SSQ₂) as the ones most likely to engage in certain kinds of interactions with elementary Black and White teachers, such as reading the lesson aloud, being called on most often, and who are the best students. However, the data reported in Table 54 suggest further that the same students were often selected or nominated by their classmates for several different items on the SSQ.

Findings which resulted from the correlational analyses of elementary White teachers with BTP and WTP are presented in Tables 55-59. White teachers' interactions with BTP on two of the DIS variables correlated significantly with the TEE, TEQ, and SSQ (see Table 55). Teachers' "give answer"

*This form of abbreviation is used throughout in reporting the correlational analyses as a means of identifying which variables of a particular instrument are the targets of discussion. In this instance, Variables 24 and 25 of the Teacher-Child Dyadic Interaction System (DIS) are the focus of attention.

TABLE 55

SIGNIFICANT CORRELATIONS BETWEEN WHITE ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH BLACK
TARGETED PUPILS (BTP)
(n=16)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
2					3	-.53*
6					1	-.61**
7			4	.61**	2	.51*
8					2	-.57**
9					9	-.59**
10					2	-.60**
					6	-.53*
12					9	-.54*
16					2	-.53*
					4	-.64***
					8	-.53*
17	-.69***	-.61**	1	.50*		
18			7	.50*	5	.52*
19			1	.52*		
20			7	.67***		
22			5	.51*		
26			1	.53*		
27	-.65***	-.54*	6	-.50*		

* = .05
** = .02
*** = .01

TABLE 56

SIGNIFICANT CORRELATIONS BETWEEN WHITE ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH BLACK
TARGETED PUPILS (BTP)
(n=4)

Instrument	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.83***	1	-.64***		
TEQ		5	.54*	5	.56*

* = .05

** = .02

*** = .01

TABLE 57

SIGNIFICANT CORRELATIONS BETWEEN WHITE ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH WHITE
TARGETED PUPILS (WTP)
(n=16)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
2			1	-.51*	1	-.59**
					5	-.60**
					6	-.57**
3			1	.52*		
5			9	-.50*		
7		-.52*	8	-.53*	5	-.54*
8			4	.55*	9	-.52*
9		-.52*	3	-.66***	3	-.68***
			5	-.70***	4	-.52*
			8	-.72***	5	-.58**
					6	-.67***
					8	-.59**
12		-.50*	5	-.54*	3	-.52*
			8	-.64***	5	-.56*
					6	-.50*
16			3	.54*		
17					4	-.58**
					7	-.53*
19			3	.54*		

* = .05

** = .02

*** = .01

TABLE 57 (Cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
22			9	.52*		
23			9	-.53*		
24			9	-.58**		
28			5	-.54*	4	-.50*
			9	-.54*		
29			5	.54*	4	.50*
			9	.54*		

* = .05

** = .02

*** = .01

TABLE 58

SIGNIFICANT CORRELATIONS BETWEEN WHITE ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH WHITE TARGETED
TARGETED PUPILS (WTP)
(n=16)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.65***	1	.53*	7	-.55*
		5	.71***		
		7	-.59**		
		8	.62***		
		9	.61***		
TEQ		3	.61**	7	-.74***
		5	.67***	8	.64***
		8	.75***		
		9	.56*		

* = .05

** = .02

*** = .01

TABLE 59

SIGNIFICANT CORRELATIONS BETWEEN WHITE ELEMENTARY TEACHERS' MEAN SCORES ON THE
VARIABLES OF THE SSQ₁ AND SSQ₂ MEASURES OF PUPIL-TEACHER INTERACTION
WITH BLACK TARGETED PUPILS (BTP) AND WHITE TARGETED PUPILS (WTP)
(n=16)

Black Targeted Pupils			White Targeted Pupils		
SSQ ₁	SSQ ₂	r	SSQ ₁	SSQ ₂	r
1	1	.88***	3	3	.65***
	4	.55*		6	.63***
2	2	.62***		8	.59**
3	3	.88***	5	6	.78***
4	1	.68***	6	5	.59**
	4	.79***	7	7	.68***
5	5	.95***	8	3	.57**
6	6	.82***		5	.55*
7	7	.65***		6	.64***
8	8	.89***		8	.65***
9	1	.50*	9	6	.64***
	7	.55*			
	9	.68***			

* = .05
** = .02
*** = .01

terminal feedback (DIS₁₇) correlated negatively with teachers' estimates of extent and quality of pupils' interactions, and positively with "who reads aloud" (SSQ₁). Teachers' negative behavioral contacts (DIS₂₇) correlated negatively with the TEE, TEQ, and with "who doesn't get to say much in class" (SSQ₆).

The TEE and TEQ of elementary White teachers also correlated positively with their observed interactions with WTP. The most significant of these correlations occurred between the DIS and the SSQ. Often a single variable on one of these instruments correlated with several variables on the other one, as Tables 57 and 59 demonstrate. This pattern persisted throughout all correlational analyses for all teachers, not merely for teachers in elementary schools. Table 58 shows that variable 9 of the SSQ, "who is called on most often," correlated with six of the twenty-nine DIS measures of elementary White teachers' interactions with WTP. These six variables were: process questions (5), ask new questions feedback (22), pupil-created work contacts (11), and observed pupil-pupil interactions (DIS₂₈ and 29). "Who answers questions when no one else can" (SSQ₅) also correlated with multiple variables on the DIS. These were correct pupil responses (9), don't know pupil responses (12), and observed pupil-pupil interactions (variables 28 and 29). Elementary White teachers' estimates of the extent and quality of White pupils' classroom interactions correlated positively with pupil perceptions

of "who answers questions when no one else can" (SSQ₅), "who is the best student in class" (SSQ₈), and "who is called on most often by teachers" (SSQ₉). These data are summarized in Table 58. Table 59 illustrates the fact that the number of BTP and WTP chosen by their classmates as those most likely to engage in verbal interactions with elementary White teachers correlated very high, item by item, with the number of votes received.

Tables 60-64 indicate twenty-six significant correlations between all elementary teachers' (Black and White teachers combined to form a single group) verbal interactions with BTP, and eighty-one with WTP were obtained. Three sets of correlations relative to elementary teachers' verbal interactions with Black pupils merit special attention. Table 60 indicates that teachers' observed interactions in terms of DIS measures of choice questions (7), give answers feedback (17), and positive behavioral contacts (27) correlated negatively with teachers' estimates of the extent (TEE) and quality (TEQ) of pupils' participation in classroom interactions. Furthermore, choice questions correlated positively with pupils' perceptions of "who erases the chalkboard" (SSQ₄); give answers feedback correlated positively with "who reads aloud" (SSQ₁); and teachers' positive behavioral contacts correlated positively with "who erases the chalkboard," but negatively with "who doesn't get to say much in class" (SSQ₆).

The TEE and TEQ correlated, in a positive way, for all elementary teachers with both BTP and WTP, as is

TABLE 60

SIGNIFICANT CORRELATIONS BETWEEN ALL ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH WHITE
TARGETED PUPILS (WTP)
(n=20)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
2			1	-.50*	5	-.61***
			3	-.46*	6	-.60***
			5	-.53**		
			8	-.45*		
			9	-.46*		
3			1	.53**		
7		-.52**	8	-.46*	5	-.46*
					8	-.55**
8					2	-.50*
9	-.49		2	-.62***	3	-.60***
			4	-.68***	4	-.52**
			8	-.68***	5	-.52**
			9	-.48*	6	-.61**
					9	-.44*
12	-.50*		5	-.53**	5	-.45*
			8	-.57***	6	-.47*
17			6	-.47*	4	-.56***
					7	-.54**
21					2	-.46*

* = .05
** = .02
*** = .01

TABLE 60 (cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
22	.45*		3	.49*	6	.56**
			5	.55**		
			9	.59***		
23	-.45*		3	-.49*	6	-.56**
			5	-.55**		
			9	-.59***		
24			9	-.63***		
25			5	.44*	5	.48*
			6	.48*		
27			1	.47*		
28			5	-.45*		
29			5	.45*		

* = .05
 ** = .02
 *** = .01

TABLE 61

SIGNIFICANT CORRELATIONS BETWEEN ALL ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH BLACK
TARGETED PUPILS (BTP)
(n=20)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.83***	2	-.63***	-	-
TEQ		5	.55**	5	.58*

* = .05
** = .02
*** = .01

TABLE 62

SIGNIFICANT CORRELATIONS BETWEEN ALL TEACHERS' MEAN
 SCORES ON THE VARIABLES OF THE DIS, TEE, TEQ, SSQ₁,
 AND SSQ₂ MEASURES OF PUPIL-TEACHER INTERACTION
 WITH BLACK TARGETED PUPILS (BTP)
 (n=74)

DIS	TEE	TEQ	SSQ ₁ Variables	r	SSQ ₂ Variables	r
1			1	.27**		
			2	.29**		
2					2	-.24*
6					6	-.25*
10			5	.27**	2	-.24*
13		-.23*				
14			1	.27**		
16					2	-.24*
17			1	.26*		
20			4	.27**		
21			5	.38***		
22			6	-.30***	4	.25*
			9	.23*	5	.25*
24			1	.29**		
			8	.26*	1	.30***
			9	.27**	3	.23*
					4	.26*
					9	.27**
25			2	.23*		
			7	.23*		
26			7	.27**		

* = .05

** = .02

*** = .01

TABLE 62 (Cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
27			4	.29**	2	.23*
					4	.28**
28	.24*		3	.24*	3	.27**
			9	.23*	9	.26*

* = .05
 ** = .02
 *** = .01

TABLE 63

SIGNIFICANT CORRELATIONS BETWEEN ALL ELEMENTARY
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH WHITE
TARGETED PUPILS (WTP)
(n=20)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.54**	1	.54**	2	-.46*
		2	-.47*	7	-.53**
		3	.49*		
		5	.71***		
		7	-.57**		
		8	.61***		
		9	.61***		
TEQ		3	.49*	7	-.70***
		5	.51**	8	.69***
		7	-.44*		
		8	.65***		

* = .05
** = .02
*** = .01

TABLE 64

SIGNIFICANT CORRELATIONS BETWEEN ALL ELEMENTARY TEACHERS' MEAN SCORES ON THE VARIABLES OF THE SSQ1 AND SSQ2 MEASURES OF PUPIL-TEACHER INTERACTION WITH BLACK TARGETED PUPILS (BTP) AND WHITE TARGETED PUPILS (WTP) (n=20)

Black Targeted Pupils				White Targeted Pupils			
SSQ1	SSQ2	r		SSQ1	SSQ2	r	
1	1	.88***		2	7	.51*	
	4	.55**		3	3	.68***	
2	2	.63***			5	.45*	
3	3	.85***			6	.67*	
	9	.45*			8	.55**	
4	1	.58***		4	4	.47*	
	4	.70***		5	3	.51*	
	9	.52**			5	.50*	
5	5	.94***			6	.81***	
6	3	.46*		6	6	.61***	
	6	.58***		7	7	.70***	
7	7	.61***		8	3	.58***	

* = .05
 ** = .02
 *** = .01

TABLE 64 (Cont'd.)

Black Targeted Pupils			White Targeted Pupils		
SSQ ₁	SSQ ₂	r	SSQ ₁	SSQ ₂	r
8	8	.88***		5	.52**
9	1	.46*		6	.66***
9	7	.51*	8	8	.61***
	9	.68***	9	6	.68***

* = .05

** = .02

*** = .01

evident by the data presented in Tables 61 and 63. By far the greatest number of obtained significant correlations of total elementary teachers' verbal interactions with White pupils were negative. Three examples taken from Table 62 serve to illustrate this point. Observed correct responses of White pupils (DIS_9) correlated negatively with the TEE, and with pupils' estimates of who were asked to "sit up and pay attention" (SSQ_2), "to erase the chalk-board" (SSQ_4), "the best students" (SSQ_8) and "who was called on most often by teachers" (SSQ_9). Pupil-created work contacts (DIS_{23}) correlated positively with teachers' estimates of pupil participation, and with pupil perceptions of "who did a fine job" (SSQ_3), "who answers questions when no one else can" (SSQ_5), and "who was called on most often by teachers" (SSQ_9). By comparison, teacher-afforded work contacts (DIS_{24}) correlated negatively with the same three items of the SSQ (3, 5, and 9). Significant correlations also occurred between all elementary teachers' estimates of the extent and quality of WTP's participation and pupils' perceptions of "who did good reports," "who answers questions when no one else can," "who does poor work," and "who is the best student in class." These items correspond with SSQ variables 3, 5, 7, and 8 respectively as listed in Table 63.

As might be expected the number of targeted pupils selected by their classmates as frequent participants in pupil-teacher interactions correlated highly with the number of votes they received on all items of the SSQ. This

conclusion applied to elementary teachers' verbal interactions with both Black and White pupils, and was deduced from the data reported in Table 64. Similar correlational patterns of this kind prevailed equally as well for all other teachers participating in this research investigation.

Correlational Analyses for Junior High Teachers

Tables 65-69 report the correlational data for junior high Black teachers' interactions with Black and White pupils. Eleven variables of the DIS correlated in some way with the TEE, the TEQ, and the items of the SSQ (see Table 65). For example, variable 22 of the DIS, "ask new questions" sustaining feedback, correlated, in a positive way, with junior high Black teachers' estimates of extent and quality of Black pupils' participation, and with pupil perceptions of "who answers questions when no one else can" (SSQ₅). A total of fifty-six significant correlations resulted from the analyses of Black teachers with WTP on the four instruments. No particular patterns emerged, except that a single item on one instrument often correlated with several items on one or more of the other instruments (see Tables 67-69). For example, call-out public responses opportunities (DIS₄) correlated with three items of the SSQ: "read the lesson aloud," "you did a fine job on your report," and "who is the best student in class." These correspond with variables 1, 3, and 8 in Table 67. The most consistent correlations throughout junior high Black

TABLE 65

SIGNIFICANT CORRELATIONS BETWEEN JUNIOR HIGH BLACK
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH
BLACK TARGETED PUPILS (BTP)
(n=9)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
1			2	.87***	7	.89***
7			4	.67*	9	.88**
			9	.98***		
9	.81***	.80***				
10			5	.78**		
11	-.78**	-.80***			5	-.70*
					9	-.69*
15					5	.69*
20			1	.99***	1	.77**
			2	.76*	2	.81***
			4	.96***	4	.76**
					6	-.70*
22	.83***	.93***	5	.70*	4	.71*
					5	.89***
					9	.77**
23		-.71*	7	.78**		
25			9	.82***	9	.74*
27		.67*			1	.73*
					6	-.82***
					9	.70*

* = .05

** = .02

*** = .01

TABLE 66

SIGNIFICANT CORRELATIONS BETWEEN BLACK JUNIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH BLACK TARGETED
PUPILS (BTP)
(n=9)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.89**			4	.82***
				5	.75**
TEQ				4	.80***
				5	.86***
				9	.79**

* = .05
** = .02
*** = .01

TABLE 67

SIGNIFICANT CORRELATIONS BETWEEN JUNIOR HIGH BLACK
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH
WHITE TARGETED PUPILS (WTP)
(n=9)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
2					2	.84***
4			1	.72*	8	.73*
			3	.72*		
			8	.92***		
9	.78**				3	.69*
					5	.74*
					8	.68*
11	-.83***				3	-.70*
					5	-.70*
					7	-.72*
12	.71*		6	.70*		
13			7	.75**		
14			7	.71*		
15			3	.81***	8	.74*
16			8	.95***		
18			3	.78**	8	.71*
			8	.81***		
20			5	.77**	5	.74*
			9	.84***	9	.70*
23			6	.98***		

* = .05
** = .02
*** = .01

TABLE 67 (Cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
24		.80***	3	.86***	3	.83***
					5	.72*
27					8	.70*
			2	.68*		
28			2	-.76**	2	-.70*
					8	.76**
29			2	.76**	2	.70*
					8	-.76**

* = .05
 ** = .02
 *** = .01

TABLE 68

SIGNIFICANT CORRELATIONS BETWEEN BLACK JUNIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH WHITE TARGETED
PUPILS (WTP)
(n=9)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.83***			4	.70*
				5	.75**
TEQ				5	.76**

* = .05
** = .02
*** = .01

TABLE 69

SIGNIFICANT CORRELATIONS BETWEEN BLACK JUNIOR HIGH TEACHERS' MEAN SCORES ON THE VARIABLES OF THE SSQ_1 AND SSQ_2 MEASURES OF PUPIL-TEACHER INTERACTION WITH BLACK TARGETED PUPILS (BTP) AND WHITE TARGETED PUPILS (WTP) (n=9)

Black Targeted Pupils			White Targeted Pupils		
SSQ_1	SSQ_2	r	SSQ_1	SSQ_2	r
1	1	.82***			
	2	.80***			
	4	.77**			
	6	-.76**			
2	2	.73*			
	7	.87***			
3	3	.87***	3	3	.72*
				8	.82***
4	1	.70*			
	2	.72*			
	4	.91***			
	6	-.73*			

* = .05
 ** = .02
 *** = .01

TABLE 69 (cont'd.)

Black Targeted Pupils				White Targeted Pupils			
SSQ ₁	SSQ ₂	r		SSQ ₁	SSQ ₂	r	
5	5	.77**		5	1	.81***	
					4	.72*	
					5	.83***	
				5	9	.91***	
6	1	-.67*					
	2	-.75**					
	6	.68*					
	7	-.74*					
8	8	1.00***		8	2	-.70*	
					8	.80***	
9	4	.74*		9	1	.82***	
	9	.95***			4	.67*	
					5	.82***	
					9	.89***	

* = .05
 ** = .02
 *** = .01

teachers' interactions with BTP and WTP occurred between the variables of the DIS and those of the SSQ.

According to the data presented in Tables 70-74 fewer significant correlations occurred between junior high White teachers' verbal behaviors with both BTP and WTP than were obtained between Black teachers' interactions with Black and White pupils. None of the DIS items correlated significantly with the TEE or the TEQ measures of White teachers' interactions with Black pupils. Only one correlation between these three indices of White pupil interactions with White teachers occurred (consult Tables 70 and 72 for this information). As Tables 71 and 73 demonstrate correlations did occur between the TEE and TEQ for White teachers' interactions with both BTP and WTP in junior high schools. Items 14 (no feedback), 16 (process feedback), and 21 (rephrase or give clue feedback) of the DIS correlated with the same three items of the SSQ: "who answers questions when no one else can" (5), "who is the best student" (8), and "who does the teacher call on most often" (9). These data are reported in Table 72.

When the thirty-two junior high teachers were treated as a single group, without regard to their ethnic identity, different kinds of correlations between the measures of pupil-teacher interactions were observed, although patterns similar to those previously established tended to prevail. Results of these correlational analyses, according to pupil ethnic groups, are summarized in Tables

TABLE 70

SIGNIFICANT CORRELATIONS BETWEEN JUNIOR HIGH WHITE
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH
BLACK TARGETED PUPILS (BTP)
(n=23)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
1			2	.62***	9	.45*
2					4	-.45*
6					4	-.46*
					5	-.52**
7			2	.49**		
11					4	-.45*
12			9	.54***	7	-.42*
					9	.46*
13					4	-.42*
17					6	-.41*
25			9	-.45*		
27			2	.43*		
			5	-.42*		
28			5	.46*	4	-.46*
29			5	-.46*	4	.46*

* = .05

** = .02

*** = .01

TABLE 71

SIGNIFICANT CORRELATIONS BETWEEN WHITE JUNIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH BLACK TARGETED
PUPILS (BTP)
(n=23)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.55***	5	.41*	5	.52**
		6	-.63***		
TEQ		6	-.41*	3	.64***
		7	-.54**	6	-.44*
		9	.44*		

* = .05
** = .02
*** = .01

TABLE 72

SIGNIFICANT CORRELATIONS BETWEEN JUNIOR HIGH WHITE
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH
WHITE TARGETED PUPILS (WTP)
(n=23)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
2					1	.57***
					2	.69***
					3	.47*
					4	.69***
					5	.56***
					6	.54***
					7	.69***
					8	.75***
5			8	.45*		
6			6	.41*		
9			1	.42*	5	.47*
13			4	-.41*		
14			3	.67***		
			5	.70***		
			8	.69***		
			9	.45*		
15					5	.41*
16			3	.75***		
			5	.78***		
			8	.82***		
			9	.49**		

* = .05
** = .02
*** = .01

TABLE 72 (cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
21			1	.53***	9	.43*
			5	.50**		
			8	.45*		
			9	.46*		
25			2	.45*		
27	-.64***	-.41*				
			3	-.58***		
			5	-.45*		
29			3	.58***		
			5	.45*		

* = .05
 ** = .02
 *** = .01

TABLE 73

SIGNIFICANT CORRELATIONS BETWEEN WHITE JUNIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH WHITE TARGETED
PUPILS (WTP)
(n=23)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.65***	6	-.42*	8	.44*
TEQ				6	-.44*

* = .05

** = .02

*** = .01

TABLE 74

SIGNIFICANT CORRELATIONS BETWEEN WHITE JUNIOR HIGH TEACHERS' MEAN SCORES ON THE
VARIABLES OF THE SSQ1 AND SSQ2 MEASURES OF PUPIL-TEACHER INTERACTION
WITH BLACK TARGETED PUPILS (BTP) AND WHITE TARGETED PUPILS (WTP)
(n=23)

Black Targeted Pupils			White Targeted Pupils		
SSQ ₁	SSQ ₂	r	SSQ ₁	SSQ ₂	r
1	1	.43*	1	5	.48**
2	2	.41*		9	.43*
5	5	.43*	3	3	.45*
6	6	.52**	6	6	.51**
7	3	-.48*			
	5	-.43*			
8	1	.59***			
	8	.68***			
9	6	-.41*	9	9	.45***
	9	.75***			

* = .05
** = .02
*** = .01

75-79. Again, a single variable on one instrument correlated with multiple variables on another instrument. This pattern is particularly evident in the data included in Tables 75, 76, and 77. Take, for example, variable 7 (choice questions) of the DIS on Table 75. It correlated significantly with "who answers when no one else can," "who does poor work," and "who is called on most often" (variables 5, 7, and 9) of the SSQ.

Another notable correlational result of junior high teachers' interactions with Black pupils (and one which occurred rather infrequently in all correlational analyses) was finding significant correlations between all four instruments on the same variable. Observed pupil-pupil interactions for BTP (DIS₂₈ and 29) correlated with teachers' estimates of the extent and quality of pupils' classroom participation, and with pupil perceptions of "who gives answers when no one else can" (SSQ₅). Table 77 shows that observed wrong responses (DIS₁₁) offered by White pupils to questions posed by junior high teachers correlated negatively with the TEE and TEQ, but positively with pupil perceptions of "who didn't get to say much in class" (SSQ₆).

Five instances occurred in which junior high teachers' observed interactions with WTP, as measured by the DIS variables, correlated significantly with more than one variable on the SSQ (see Table 77). Variable 16 alone (process feedback) correlated positively with four SSQ items: who reads aloud (1), who does fine reports (3), who answers

TABLE 75

SIGNIFICANT CORRELATIONS BETWEEN ALL JUNIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH
BLACK TARGETED PUPILS (BTP)
(n=23)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
1			2	.60***		
6					4	-.39*
					5	-.48***
7			5	.56***	6	-.38*
			7	-.35*	9	.41**
			9	.57***		
8			9	.36**		
9	.48***	.39*				
10					2	-.39*
11	-.49***	-.43**			4	-.42**
					5	-.35*
12	.42**		9	.42**	7	-.35*
					9	.47***
18			3	.43**		
20			1	.60***		
			4	.40*		
22	.41**				5	.35*
23			5	-.38*		
27	.40*		2	.38*	2	.39*
28	.46***	.36*	5	.37*		
29	-.46***	-.36*	5	-.37*		

* = .05

** = .02

*** = .01

TABLE 76

SIGNIFICANT CORRELATIONS BETWEEN ALL JUNIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH BLACK TARGETED
PUPILS (BTP)
(n=32)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.70***	5	.41**	1	.37*
		6	-.46***	5	.53***
		9	.38*		
TEQ		1	.35*	3	.56***
		5	.40*	5	.45***
		7	-.53***	6	-.45***

* = .05
** = .02
*** = .01

TABLE 77

SIGNIFICANT CORRELATIONS BETWEEN ALL JUNIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH
WHITE TARGETED PUPILS (WTP)
(n=23)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
2					2	.47***
					4	.37*
					5	.39*
					7	.37*
6	-.36*					
9			1	.40*	5	.50***
			2	-.35*	8	.37*
11	-.46***	-.50***	6	.36*		
			7	.50***		
13			6	.42**		
14			3	.42**		
			7	.53**		
			8	.45***		
15			7	.40*		
16			1	.36*		
			3	.78***		
			5	.57***		
			8	.87***		
20			9	.41**		
21			1	.35*		

* = .05

** = .02

*** = .01

TABLE 78 (cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
22	.39*					
23			6	.35*		
24			2	-.37*		
			3	-.48***		
			6	.35*		

* = .05
 ** = .02
 *** = .01

TABLE 78

SIGNIFICANT CORRELATIONS BETWEEN ALL JUNIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-
TEACHER INTERACTION WITH WHITE TARGETED
PUPILS (WTP)
(n=32)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.72***	6	-.51***	5	.42**
				8	.40*
TEQ		6	-.47***	6	-.37*
		7	-.38*		

* = .05
** = .02
*** = .01

TABLE 79

SIGNIFICANT CORRELATIONS BETWEEN ALL JUNIOR HIGH TEACHERS' MEAN SCORES ON THE VARIABLES OF THE SSQ_1 AND SSQ_2 MEASURES OF PUPIL-TEACHER INTERACTION WITH BLACK TARGETED PUPILS (BTP) AND WHITE TARGETED PUPILS (WTP) (n=32)

Black Targeted Pupils			White Targeted Pupils		
SSQ_1	SSQ_2	r	SSQ_1	SSQ_2	r
1	1	.48***	1	5	.46***
2	2	.48***		9	.50***
3	3	.46***			
4	4	.48***			
5	5	.49***	5	5	.48***
6	9	.39*		9	.58***
	2	-.35*	6	6	.42**
	6	.51***			
7	3	-.46***			
	5	-.42**			

* = .05
 ** = .02
 *** = .01

TABLE 79 (cont'd.)

Black Targeted Pupils				White Targeted Pupils			
SSQ ₁	SSQ ₂	r		SSQ ₁	SSQ ₂	r	
8	1	.54***		8	8	.36**	
	8	.73***					
9	6	-.44**		9	5	.45***	
	9	.81***			9	.64***	

* = .05

** = .02

*** = .01

questions when no one else can (5), and who are the best students in class (8). Significant correlations were also obtained between junior high teachers' estimates of the extent (TEE) and quality (TEQ) of Black and White pupils' participation in classroom interactions, as is evident from the data reported in Tables 76 and 78. Finally, the number of Black and White pupils selected and the number of votes they received from their classmates on each of the SSQ items were perfectly correlated, item by item (see Table 79).

Correlational Analyses for Senior High Teachers

Correlational analyses between systematically observed teacher verbal behavior, teachers' estimates, and pupils' perceptions of pupil-teacher verbal interactions in desegregated senior high schools also revealed several significant results. Table 80 indicates that five of the DIS measures of teachers' interactions with Black pupils correlated with the same variable of the SSQ: "who answers questions when no one else can" (SSQ₅). The DIS measures were: open contacts (3), product questions (6), partially correct responses (10), teacher praise and affirmation of pupil responses (13), and rephrase and give clues sustaining feedback (21). The DIS measures of choice questions (7), and give answers teacher feedback (17) were significantly correlated with senior high teachers' estimates of the frequency of Black pupils' participation in classroom interactions. These are but a few illustrations of the kinds

TABLE 80

SIGNIFICANT CORRELATIONS BETWEEN SENIOR HIGH TEACHERS'
 MEAN SCORES ON THE VARIABLES OF THE DIS, TEE,
TEQ, SSQ₁, AND SSQ₂ MEASURES OF PUPIL-TEACHER
 INTERACTION WITH BLACK TARGETED PUPILS (BTP)
 (n=22)

DIS	TEE	TEQ	SSQ ₁ Variables	r	SSQ ₂ Variables	r
1					1	.61***
					8	.55***
2					2	-.46*
					5	-.43*
3			5	.68***		
			9	.41*		
4			2	.50**	6	-.43*
5			8	.49**		
6			5	.49**	5	.44*
			6	-.43*	6	-.45*
7	.47*					
8					6	.59***
10			5	.49**	5	.58***
11					5	-.47*
13			5	.51**		
14	.47*		1	.42*	5	-.42*
17		.41*				
19			8	.41*		
21			5	.55***		
24			9	.65***	4	.46*
					9	.48**
28					6	-.44*

* = .05

** = .02

*** = .01

of significant correlations obtained between senior high teachers' observed verbal interactions with Black pupils, and teachers' and pupils' perceptions of those interactions. Others are detailed in Tables 80, 81, and 84.

Tables 82, 83, and 84 present significant correlations for senior high teachers with White targeted pupils. Several examples of multiple correlations per item on the DIS and SSQ were obtained. Table 82 shows that DIS₇ (choice questions) correlated with SSQ₃ and 8 ("who did a fine report" and "who were best students"); DIS₂₄ (teacher-afforded work contacts) with SSQ₁ and 9 ("who reads aloud" and "who is called on most often"); and DIS₂₈ and 29 (observed pupil-pupil interactions) with SSQ₂ and 7 ("sit up and pay attention" and "who does poor work in class"). Who initiated pupil-pupil interactions (DIS₂₈) correlated positively with teacher perceptions of both the frequency (TEE) and quality (TEQ) of White pupils' interactions with White senior high teachers. The same variable correlated negatively with pupils' perceptions of "who is asked to sit up and pay attention" (SSQ₂) and "who does poor work in class" (SSQ₇).

Two other patterns of correlations are worth mentioning here since they were apparent for senior high teachers' interactions with both Black and White targeted pupils. First, significant positive correlations occurred between the TEE and TEQ for both groups of pupils (see Tables 81 and 83). Second, the measures ascertaining the number of

TABLE 81

SIGNIFICANT CORRELATIONS BETWEEN SENIOR HIGH TEACHERS'
 MEAN SCORES ON THE VARIABLES OF THE TEE, TEQ, SSQ₁
 AND SSQ₂ MEASURES OF PUPIL-TEACHER INTERACTION
 WITH BLACK TARGETED PUPILS (BTP)
 (n=22)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.53***	-		3	.66***
TEQ	-	-		7	-.44*

* = .05
 ** = .02
 *** = .01

TABLE 82

SIGNIFICANT CORRELATIONS BETWEEN SENIOR HIGH
TEACHERS' MEAN SCORES ON THE VARIABLES OF
THE DIS, TEE, TEQ, SSQ₁, AND SSQ₂
MEASURES OF PUPIL-TEACHER
INTERACTION WITH WHITE
TARGETED PUPILS (WTP)
(n=22)

DIS	TEE	TEQ	SSQ ₁ Variables	r	SSQ ₂ Variables	r
2					6	-.41*
3			7	.51**	7	.44*
4					6	.46*
5			1	.53**		
6		-.48**				
7			3	.73***	3	.54***
			8	.66***	5	.45*
9					9	.44*
12					9	.44*
15			4	.41*	3	.47*
					8	.50**
18	-.42*					
19	.44*					
21			3	.43*	3	.43*
22			9	.44*	1	.47*
24			1	.45*	9	.42*
			9	.49**		
27					2	.72***

* = .05
** = .02
*** = .01

TABLE 82 (cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
28	.43*	.65***	2	-.47*		
			7	-.42*		
29			2	.59***	7	.49**
			7	.57***		

* = .05
 ** = .02
 *** = .01

TABLE 83

SIGNIFICANT CORRELATIONS BETWEEN SENIOR HIGH TEACHERS'
 MEAN SCORES ON THE VARIABLES OF THE TEE, TEQ, SSQ₁
 AND SSQ₂ MEASURES OF PUPIL-TEACHER INTERACTION
 WITH WHITE TARGETED PUPILS (WTP)
 (n=22)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.83***	3	.52**	3	.55***
		8	.50**	5	.48**
				8	.51**
TEQ		3	.43*	3	.52**
		8	.50**	5	.50*
				9	.48**

* = .05
 ** = .02
 *** = .01

TABLE 84

SIGNIFICANT CORRELATIONS BETWEEN SENIOR HIGH TEACHERS' MEAN SCORES ON THE
VARIABLES OF THE SSQ1 AND SSQ2 MEASURES OF PUPIL-TEACHER INTERACTION
WITH BLACK TARGETED PUPILS (BTP) AND WHITE TARGETED PUPILS (WTP)
(n=22)

Black Targeted Pupils			White Targeted Pupils		
SSQ ₁	SSQ ₂	r	SSQ ₁	SSQ ₂	r
1	1	.62***	1	1	.85***
	9	.96***		9	.61***
	2	.67***	2	2	.65***
2	3	.63***		7	.82***
	4	.54***	3	3	.89***
	7	.61***		5	.70***
3	3	.87***		3	.47*
	4	.63***		9	.56***
	7	.44*	4	4	.45*
4	8	.65***	5	1	.49***
	4	.95***		3	.42*
	5	.49**		5	.89***

* = .05
** = .02
*** = .01

TABLE 84 (cont'd.)

Black Targeted Pupils				White Targeted Pupils			
SSQ ₁	SSQ ₂	r		SSQ ₁	SSQ ₂	r	
	8	.50**			8	.51**	
	9	.42*			9	.74*	
5	4	.61***		6	6	.81***	
	5	.77***		7	2	.65***	
6	6	.84***			7	.93***	
	8	.47*		8	3	.73***	
7	2	.65***			5	.80***	
	3	.58***			8	.61***	
	7	.83***			9	.50**	
8	1	.51**			1	.70***	
	8	.91***		9	5	.61***	
9	1	.59***			8	.44*	
	4	.47**			9	.75***	
	9	.85***					

* = .05
 ** = .02
 *** = .01

nominations targeted pupils received per item on the SSQ (pupil perceptions of teacher's verbal behavior in the classroom), and the number of pupils nominated per item were perfectly correlated. This conclusion follows from the data delineated in Table 84.

Correlational Analyses for All Teachers

Correlational analyses of all teachers' verbal interactions with Black (BTP) and White targeted pupils (WTP), without regard to school level or teacher ethnicity, followed basically the same patterns of those which emerged when teachers were grouped by school levels. Both the TEE and TEQ for BTP correlated with only two measures of the DIS (initiated pupil-pupil interactions (28) and teacher praise and affirmation of pupil responses (12), respectively). However, multiple correlations between the variables of the DIS and the SSQ were obtained. These data are summarized in Table 85. Several examples of these multiple correlations are worth mentioning here. SSQ₉ ("who is called on most often") correlated with "ask new questions" sustaining feedback (DIS₂₂), teacher-afforded work contacts (DIS₂₄), and recipients of pupil-pupil interactions (DIS₂₉). "Who reads aloud" (SSQ₁) correlated significantly with discipline response opportunities (DIS₁), no response teacher feedback (DIS₄) and "give answer" teacher terminal feedback (DIS₁₇). Table 86 indicates that all teacher subjects' estimates of the quality (TEQ) and extent (TEE) of BTP's classroom interactions correlated positively with

TABLE 85

SIGNIFICANT CORRELATIONS BETWEEN ALL
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE
DIS, TEE, TEQ, SSQ₁ AND SSQ₂ MEASURES OF
PUPIL-TEACHER INTERACTION WITH BLACK
TARGETED PUPILS (BTP)
(n=20)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
6					2	-.49*
7	-.46*	-.49*	4	.45*	2	.44*
					4	.46*
9			9	-.50*	9	-.56***
10					2	-.58***
					6	-.44*
12			1	-.45*	9	-.45*
13					3	-.49*
					7	-.46*
14			7	.44*	5	.44*
15			8	-.44*		
16					2	-.49*
					4	-.61***
					8	.52**
17	-.45*	-.47*	1	.44*	1	.45*
18			5	.46*	5	.47*
20			7	.63***		
22			4	.49*		
23			6	.58***		
25			2	.48*		

* = .05

** = .02

*** = .01

TABLE 85 (cont'd.)

DIS	TEE	TEQ	SSQ ₁		SSQ ₂	
			Variables	r	Variables	r
27	-.67***	-.57***	4	.47*		
			6	-.48*		
28			9	.44*		
29			9	-.44*		

* = .05

** = .02

*** = .01

TABLE 86

SIGNIFICANT CORRELATIONS BETWEEN THE TOTAL NUMBER OF
TEACHERS' MEAN SCORES ON THE VARIABLES OF THE TEE,
TEQ, SSQ₁ AND SSQ₂ MEASURES OF PUPIL-TEACHER
INTERACTION WITH BLACK TARGETED PUPILS (BTP)
(n=74)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.68***	3	.24*	3	.39***
		5	.27**	5	.35***
		7	-.24*		
		9	.23*		
TEQ		5	.37***	3	.36***
		7	-.23*	5	.41***
		9	.42***	9	.36***

* = .05

** = .02

*** = .01

pupils' perceptions of "who answers questions when no one else can" (SSQ₅) and "who is called on most often" (SSQ₉) by teachers. Significant correlations were also obtained between the TEE and TEQ and "who does poor work in class" (SSQ₇) but negatively so.

Tables 87 and 88 present the results of the correlational analyses of all teacher subjects' interactions with White targeted pupils (WTP), as measured by the DIS, TEE, TEQ, and SSQ. Fifty-one significant correlations were obtained. Among the significant correlations between teachers' estimates of the extent and quality of pupil-teacher interactions and observed verbal behaviors of teachers were self-reference questions (DIS₉) and incorrect responses (DIS₁₁). Several single items on the DIS correlated with multiple variables on the SSQ (see Table 87). Among the most prominent were variables 14 (no teacher feedback to pupil responses) and 16 (process feedback) of the DIS correlated with the same three items on the SSQ: "who did a fine job on reports" (SSQ₃), "who answers questions when no one else can" (SSQ₅), and "who is the best student in class" (SSQ₈). "No teacher feedback" also correlated with "who does poor work" (SSQ₇), while "process feedback" correlated with "who reads aloud" (SSQ₁). The TEE and TEQ for WTP, in addition to correlating with each other, also correlated with the same five items of the SSQ: "who did fine reports" (3), "who answers when no one else can" (5), "who doesn't say much in class" (6),

TABLE 87

SIGNIFICANT CORRELATIONS BETWEEN ALL TEACHERS' MEAN
 SCORES ON THE VARIABLES OF THE DIS, TEE, TEQ, SSQ₁,
 AND SSQ₂ MEASURES OF PUPIL-TEACHER INTERACTION
 WITH WHITE TARGETED PUPILS (WTP)
 (n=74)

DIS	TEE	TEQ	SSQ ₁ Variables	r	SSQ ₂ Variables	r
2					2	.25*
3			1	.29**		
6	-.23*					
8	.31***	.32***				
9					2	.23*
10	.25*				5	.24*
11	-.30***	-.25*			1	-.23*
					8	-.28**
					9	-.23*
14			3	.27**		
			5	.28**		
			7	.25*		
			8	.32***		
15					7	.23*
16			1	.23*		
			3	.53***		
			5	.38***		
			8	.52***		
17			1	-.23*		
			8	-.23*		
20			9	.34***		

* = .05

** = .02

*** = .01

TABLE 87 (cont'd.)

DIS	TEE	TEQ	SSQ ₁	SSQ ₂		
			Variables	r	Variables	r
21		.31***	2	-.25*		
22	.24*		1	.26*	9	.27**
			5	.24*		
23			1	-.23*		
27			2	.23*		
28		.25*				
29			2	.24*		

* = .05
 ** = .02
 *** = .01

TABLE 88

SIGNIFICANT CORRELATIONS BETWEEN ALL TEACHERS' MEAN
 SCORES ON THE VARIABLES OF THE TEE, TEQ, SSQ₁ AND
 SSQ₂ MEASURES OF PUPIL-TEACHER INTERACTION WITH
 WHITE TARGETED PUPILS (WTP)
 (n=74)

Instruments	TEQ	SSQ ₁		SSQ ₂	
		Variables	r	Variables	r
TEE	.72***	3	.35***	3	.33***
		5	.33***	5	.38***
		6	-.35***	8	.37***
		7	-.23*		
		8	.31***		
TEQ		3	.35***	3	.26*
		5	.31***	5	.26*
		6	-.25*		
		7	-.33***		
		8	.35***		
		9	.23*		

* = .05
 ** = .02
 *** = .01

"who does poor work" (7), and "who is the best student in class" (8). These results are summarized in Table 88. With two exceptions, item by item correlations, between the number of pupils nominated and the number of votes they received on each of the SSQ items were statistically significant for Black and White targeted pupils with all teacher subjects. These results can be seen by surveying the data listed in Table 89.

Summary of Findings

Statistical analyses of correlations between the three different measures (observational data, teacher estimates, and pupil perceptions) of pupil-teacher verbal interactions in desegregated social studies classrooms yielded significant results for each subgroup of the total experimental population. Several significant correlations were obtained for both Black and White teachers with both Black (BTP) and White targeted pupils (WTP) for elementary, junior high, and total teachers. Although only White teachers formed the senior high category significant correlations between the observational data on their verbal behaviors, their self-perceptions, and pupils' perceptions of their verbal interactions with both Black and White targeted pupils were also obtained.

Several patterns of correlations emerged. First, multiple correlations between the variable of the Teacher-Child Dyadic Interaction System (DIS) and the variables of the Student Sociometric Questionnaire (SSQ) were noted.

TABLE 89

SIGNIFICANT CORRELATIONS BETWEEN ALL TEACHERS' MEAN SCORES ON THE VARIABLES OF THE SSQ_1 AND SSQ_2 MEASURES OF PUPIL-TEACHER INTERACTION WITH BLACK TARGETED PUPILS (BTP) AND WHITE TARGETED PUPILS (WTP) (n=74)

Black Targeted Pupils				White Targeted Pupils			
SSQ_1	SSQ_2	r		SSQ_1	SSQ_2	r	
1	1	.43***		1	1	.45***	
	9	.39***			5	.36***	
	2	.56***			8	.24*	
	4	.30***			9	.46***	
3	3	.70***		3	3	.64***	
	8	.38***			5	.44***	
	9	.23*			8	.37***	
4	2	.25*			9	.32***	
	4	.63***		4	9	.27**	
	9	.36***		5	1	.28**	
5	5	.65***			3	.40***	
	9	.33***			5	.56***	

* = .05

** = .02

*** = .01

TABLE 89 (cont'd.)

Black Targeted Pupils				White Targeted Pupils			
SSQ ₁	SSQ ₂	r		SSQ ₁	SSQ ₂	r	
6	6	.54***			6	.24*	
					8	.25*	
					9	.56***	
7	2	.44***		5	8	.25*	
8	1	.44***			9	.56***	
	3	.25*		6	6	.53***	
	4	.28**		8	3	.47***	
	5	.23*			5	.46***	
	8	.80***			6	.29**	
9	1	.32***			8	.44***	
	4	.27**			9	.35***	
	5	.29**		9	1	.30***	
	9	.79***			3	.25*	
					5	.46***	
					9	.57***	

* = .05
 ** = .02
 *** = .01

Frequently, a single variable on one of these two instruments correlated with multiple variables on the other one. Second, teachers' estimates of the extent (TEE) and quality (TEQ) of pupil participation in classroom interactions tended to correlate with only a few variables on the DIS. However, no such correlations resulted from the analyses of junior high White teachers' interactions with either Black or White targeted pupils. Third, the TEE and TEQ tended to correlate positively and highly with each other. Elementary Black teachers did deviate from this pattern. The TEE and the TEQ of elementary Black teachers did not correlate significantly with each other for either Black pupils or White pupils. Fourth, in most instances, for most subgroups of the experimental population, the TEE and TEQ correlated significantly with some items on the SSQ. This did not happen in the analyses of junior high Black teachers' interactions with BTP and WTP, nor senior high White teachers with BTP. Fifth, pupil perceptions of the number of targeted pupils most likely to have opportunities to engage in pupil-teacher interactions, and the number of votes they received according to the specific items identified by the SSQ, tended to correlate highly with each other (and item by item), for all of the experimental groups of teachers.

Although some variations did occur in the kinds of results obtained, by individual variables and between different instruments, we can conclude that, in general, the correlational analyses produced significant results for all

groups of teachers. Therefore, major Hypothesis 9, which posited that there are no significant correlations between observed, teacher estimates, and pupil perceptions measures of Black and White teachers' verbal interactions with Black and White targeted pupils in desegregated social studies classrooms, was rejected. This hypothesis was rejected for all groups of the research population--Black and White teachers in the elementary, junior high, senior high, and total teachers categories.

CHAPTER V

DISCUSSION AND CONCLUSION

Introduction

The objective of this study was to examine pupil-teacher and pupil-pupil dyadic verbal interactions in desegregated classrooms. It sought further to determine if pupil-teacher verbal interactions in desegregated social studies classes were contingent upon pupil and teacher ethnic identities and the school level. It also examined correlations between observed verbal behavior of teachers and teachers' and pupils' perceptions of pupil-teacher dyadic interactions. Specifically, the questions explored in the research investigation were: Are there any significant differences in the verbal behaviors of Black and White teachers with Black and White students in the same classrooms? Are there significant differences in how elementary, junior high and senior high teachers interact with Black and White students? How do data obtained with an observational schedule compare with teachers' estimates and pupils' perceptions of pupil-teacher verbal interactions in desegregated classrooms? If there are differences in the kind of opportunities available to Black and White students to interact with teachers, how do these affect students' overall

participation in the instructional process? What kind of verbal contacts are most likely to be made with Black students as compared with White students. Instrumentation which involved twenty-nine measures of observed verbal behaviors, two of teachers' estimates, and nine of pupils' perceptions of pupil-teacher dyadic interactions was employed in the data collection process. These sources of information were deemed most appropriate for studying the verbal dynamics of desegregated classrooms since both academic theoreticians and empirical researchers seem to agree that (1) pupil-teacher verbal interactions are the pivotal point of the educational process, (2) that teachers' expectations largely determine the nature of their verbal interactions with students, and (3) that students' classroom behavior is determined largely by their perceptions of teachers' expectations of them.

The findings of this research investigation were generally supportive of the premise that Black and White teachers interact differentially with Black and White pupils in desegregated classrooms. The significant differences in teachers' verbal behavior which were obtained from observational data tended to be reinforced by data of pupils' perception, but not necessarily so with teachers' perceptions of pupil-teacher dyadic interactions. This study is clearly exploratory and the number of specifically observed verbal behaviors on which significant differences were obtained was not necessarily impressive.

Yet, these findings should not be taken lightly in view of the paucity of research data which contribute to our understanding better the social, verbal and academic dynamics operant in de-segregated classroom situations. Because the obtained significant differences on specific verbal behaviors tended to vary with teacher ethnic groups and school levels, it seems most meaningful to first interpret the research findings in terms of specific teacher groups rather than to generalize over all groups. To do otherwise would involve astronomical risks of distorting the findings to the point of their being almost meaningless.

General Discussion of Results

Statistical analyses of teachers' verbal behaviors were reserved to elementary and junior high teachers only. The senior high teachers were not included in this statistical test since ethnic identity was a determining variable in this analysis. This is to say that the analyses were conducted according to school levels as well as ethnic group within school levels. Since there were no Black teachers in the senior high study population, to include them in this particular analysis seemed highly inappropriate.

The results of the analyses of variance of observed verbal behaviors of elementary and junior high teachers revealed significant differences on seven of the twenty-nine Teacher-Child

Dyadic Interaction System variables. Six of these favored elementary teachers. They were observed to create more direct contacts, positive feedback, and positive behavioral contacts. They also repeated questions more often than junior high teachers, and experienced more pupil-initiated procedural contacts. These findings lend themselves to several interpretations. They suggest that elementary students provide more opportunities to engage in dyadic interactions with teachers than junior high students. When teachers pose questions, or thereby create response opportunities, and ask students to respond to them without waiting for pupils to indicate a desire to do so (i.e., by raising their hands or asking permission to answer), a direct contact is actualized. Perhaps it is that teachers' preoccupation with teaching "basic skills" in the elementary grades explain why they were more directive in their interactions with pupils than junior or senior high teachers. Teaching and testing mastery of "basic skills" may be perceived by teachers as most conducive to direct public response opportunities in pupil-teacher verbal exchanges. At the same time that this kind of verbal behavior encourages pupil participation it allows teachers, if they are of such a mind, to carefully regulate the kind of interactions which occur by controlling who the participants will be.

Furthermore, the fact that elementary teachers repeat questions often, and that students create procedural contacts with them suggest that teachers at this level spend considerable amounts of time giving instructions and guidelines. These instructions may be both substantive and non-substantive in the sense of dealing with learning activities and/or classroom management procedures. Teachers may also feel that elementary students, because of where they are in the stages of educational development, require more academic structure and guidance, personal encouragement and reinforcement, and behavioral guidelines, whereas junior high teachers think that their students can function with less supervision. This conclusion follows logically from the findings that elementary teachers gave students more positive feedback on substantive matters, and praise on behavioral and procedural matters. Another reasonable conclusion is that teachers' verbal interactions with students are inversely proportional to students' educational development. As the grade level increases, the amount of pupil-teacher dyadic interaction decreases. This observation seems to account for junior high teachers giving less feedback to pupil responses than elementary teachers. These findings are in general accord with those made earlier by Evans (1969), Cornbluth, Davis, and Button (1972) and Mendoza, Good, and Brophy (1971), who found more pupil-

teacher interaction in elementary schools than high schools. Moreover, by the time students reach junior and senior high school they may have been socialized by parents, peers, teachers' expectations and behaviors, and previous personal experience [many of them rejection] not to interact verbally with teachers. The data obtained in this study support these conclusions. Considerably more interactions were observed to occur between pupils and teachers in the elementary grades than in junior and senior high schools. Therefore, the presence or absence of pupil-teacher verbal interactions in general has some determining influence upon the kinds of specific interactional patterns which result.

The obtained results suggest further that elementary students interact with each other in the classroom significantly more often than do junior or senior high students. One observer noted, as he recorded data on pupil-teacher interactions, that "there is much student-student interaction. The majority of it is about school work. There seems to be no definite pattern as to who initiates these interactions." This finding and observation may be attributable to the social inclinations of younger pupils. That is, younger pupils may not have learned to "keep quiet" as well as have older children. According to social science research younger children are more likely to engage in interracial interactions

than are older children or adults (e.g., Ferguson, 1970; Devries and Edwards, 1972; Dennis and Powell, 1972).

Undoubtedly, the prevailing educational philosophy of a given teacher or school has an influential impact upon the presence or absence of pupil-pupil interaction in general. Social interaction within the classroom seems to be more readily tolerated, if not encouraged, between elementary students than older youth. As students advance through the grades and academic demands become increasingly more rigorous, fewer opportunities are available for social interactions in the classroom. The organizational patterns prevalent in the schools may have some effect on the kind of pupil-pupil interactions observed. The "self-contained" elementary classroom seems much more conducive to teacher-pupil verbal interaction than the modular time scheduling of classes in junior and senior high schools. As a consequence, elementary pupils spend considerably more time together in the same classroom. They become more familiar with each other and the teacher, and increased interpersonal interactions take place.

Analyses of Black teachers' verbal behaviors, as compared to White teachers, independent of school levels and pupil ethnic groups, produced significant results on eight measures of the Teacher-Child Dyadic Interaction System. Even though significant differences occurred on a greater number of verbal behaviors for Black teachers than White teachers that in itself

is not the most important factor to consider. Rather, probably more meaningful is an understanding of the nature of verbal dynamics of desegregated classrooms and an understanding of the nature of these differences.

While White teachers initiated more procedural contacts with students, Black teachers created more direct contacts, asked more self-reference questions, repeated questions more often, received more wrong responses from students, offered less feedback, and made more positive behavioral contacts. They also asked other students to answer questions when the first student asked failed to do so on the initial attempt more often than did White teachers. Most of those procedural contacts initiated by White teachers were directed toward Black students.

According to Brophy and Good's Manual for Coding Classroom Interactions (1969), procedural dyadic interactions deal primarily with classroom management. They involve such behaviors as running errands, distributing equipment and supplies, assisting in keeping the classroom clean, and taking care of students' personal and immediate needs (i.e., "do you understand the assignment," "you may go to see the counselor," etc.) Since most Black students' interactions with White teachers were of this kind, patently obvious is that these pupils do not receive the same type of opportunities as White

children to participate in cognitive, intellectual and/or substantive verbal exchanges with these teachers. Teachers may interpret their behavior as expressions of concern and indicators of their desire to help Black students feel they are a part of the desegregated classroom. But opportunities for Black students' intellectual development were simply not provided to the extent made possible to White pupils.

The findings relative to Black teachers' verbal behavior seems, at first glance, contradictory and rather difficult to explain. However, some subtle patterns are evident under closer scrutiny. Although Black teachers tended to compliment and praise student behavior in general, they failed to do so in terms of specific substantive or academic behaviors. Most of the general praise was directed toward White students in the form of positive comments on their behavior beyond a specific instance. These kinds of teacher interactions can facilitate classroom management by calling attention to some kind of modeling behavior demonstrated by particular students. For example, "Johnny knows how to be quiet and pay attention," "Susie always does such a beautiful job on her art projects," "Bill gets all of his work done before he begins to talk with friends," fall into this category. From this evidence a reasonable conclusion follows: White pupils exhibited general classroom behaviors sanctioned by Black teachers and that

they were used as behavioral models in classroom management terms for Black students to follow.

The frequency of Black teachers' repeating questions may have been directly related to the fact that they gave little substantive feedback and asked more self-reference questions than did White teachers. Self-reference questions deal with non-academic matters such as queries about previous experiences, personal preferences, feelings, attitudes and values. These questions led teachers to have prolonged interactions with particular students without ever dealing with substantive subject matter content. This verbal technique does imply patience on the part of Black teachers. When students did not respond quickly to questions asked they were given another chance to answer after a short interval during which time the question was repeated as initially asked or in slightly modified form. The motivating thought behind these behaviors may have been something to the effect that, "I know you can answer the question. You just need a little more time and prompting to get your thoughts together." At the same time, this verbal procedure can be used as an indirect form of praise. Repeating questions can serve indirectly to discourage classroom participation by limiting the privilege to a relatively few students. Both of these possibilities are supported by subjective evidence drawn from the actual classes participating in this investigation. Teachers often commented about

students' potential in their efforts to orient the observers to the dynamics of their particular classrooms. One observer, in the process of collecting observational data on pupil-teacher verbal interactions, noted on his observation record that, "Most of the students do not take part in class discussions. Two or three of the same students are doing all of the talking."

Moreover, Black teachers may have needed to repeat the questions they asked because students frequently gave incorrect answers to them. If students continue to respond incorrectly it seems only logical that teachers would terminate the verbal exchange by asking someone else to respond. This pattern of pupil-teacher interactions also has a direct corollary to direct verbal contacts. Undoubtedly students become skeptical about volunteering to participate in classroom interactions if their responses are always incorrect, and if they receive little or no positive and supportive teacher feedback. The only alternative left for the teacher in such a situation may be to ignore them or try to "force" their participation by calling on them by name. This is one possible explanation for the frequency of direct contacts observed. To the extent that the possibility is reasonable, then, it supports the contentions of educators who argue that it is essential for students to experience success and positive reinforcement if their participation in and benefits from the educational process are to be maximized. Another way of interpreting the prominence of

direct contacts among Black teachers' verbal behaviors stems from a purely social perspective. Both Black and White students may have found it rather difficult reconciling in their minds the idea of having "black teachers" and determining the most appropriate way to relate to them. Their cautiousness may have stemmed from prejudicial racial attitudes or merely the novelty or newness of having a black teacher. Whatever the source of the possible apprehensions they would have an appreciable affect on how pupils relate to Black teachers. Whereas with the more familiar "white teacher," students may have volunteered or initiated responses, Black teachers had to solicit these responses. Or, possibly, Black teachers, because of what they perceived as social pressures and behavioral or performance expectations, felt called upon to be more formal and structured in their academic interactions with students.

The conclusions which resulted from the statistical analyses of Black and White teachers' differential interactions with Black and White students, without regard to school level, produced significant differences on eleven of the twenty-nine measures of the Teacher-Child Dyadic Interaction System. Distinctive patterns of pupil-teacher interaction emerged. Teachers' verbal behaviors with Black students were primarily of a non-academic, procedural, behavioral nature. Conversely, White students participated in more substantive, positive,

reinforcing, detailed verbal interactions. Black students received more discipline contacts and gave more wrong answers than White pupils. Teachers may have used discipline contacts as a control device. This means attempting to direct or force participation by calling on those Black students who were obviously uncooperative and inattentive. Thus, direct contacts can be used as a way of criticizing undesirable academic behavior. It follows that if students are not involved in or paying attention to the flow of the classroom conversation they will be unable to answer questions coherently or correctly when asked. Other questions, worthy of consideration in interpreting these findings, are: Are Black students normally more inattentive than Whites? Was the subject matter content being discussed more relevant to Whites than Blacks? Do Blacks give the appearance of inattention as a defense against perceived hostilities, feelings of being unwelcomed, as fears of possible rejection by teachers? Other questions must be posed and studied in order that better explanations and subsequently more appropriate programs may be advanced.

The need to rephrase questions to Black students and/or give clues to answers may have been prompted by Black students' inattention or uninvolved in classroom activities. Or, it could be that once teachers gain Black students' attention, they

try to facilitate their participation by rephrasing or simplifying questions to elicit a response. This kind of verbal behavior has both positive and negative connotations. It can be a form of encouragement, or it can be a function of low teacher expectations of Blacks' abilities to handle complex, abstract questions. Thus, simplification of questions and suggesting clues as to what the answers might be ease the responsibilities of the students.

Even in private individualized work situations, Black students' entry into verbal contacts with teachers were not self-initiated. They were teacher afforded. Several possible explanations might account for this behavior. Black students may not have felt comfortable about asking teachers for aid and assistance. Too, they may have been socialized by forces within and outside the school community which do not sanction initiating contacts, of any kind, with teachers (adults). The subject matter content may have seemed so inconsequential as not to be worth the effort of carrying out the assignments. Or, teachers thought Black students needed extra guidance and supervision in addressing themselves to academic tasks, and the most effective way to do this was on an individual basis.

The assessments of Black students' participation in verbal interactions with teachers in terms of observational data were

reinforced by pupils' perceptions. They assessed Black pupils' participation to be negative or not at all present, because they did not get to say as much in class and did poorer work than did White students. These results are accountable to junior and senior high school students' differential perceptions since elementary students perceived no differences in the opportunities of Black and White students for verbal contacts with teachers. This difference may be a reflection of earlier research findings (e.g., Dennis and Powell, 1972) that elementary students are less likely to relate to their classmates on the basis of racial or ethnic identity than are older children. Evidently, older children are more racially aware on a conscious level and tend to be more discernible in their assessment of interracial pupil-teacher verbal behaviors than are younger children. Visual perceptions of observers collecting data in the junior high classes support these contentions. One observer noted that "Black and White students are segregated in seating assignments." Another commented, "There is a feeling of tension between Black and White students, and every once in a while, there is open verbal confrontation." A third observed that "when the classes divide into small work groups, all of the Blacks end up in the same group."

The above differential verbal behaviors of teachers with Black students prevailed across school levels and teacher ethnic groups. Additionally, elementary Black pupils received more negative feedback, and senior high Black students were asked more choice questions than were White students. These behaviors suggest further that Blacks received more criticism and were asked questions which require less demanding, complex cognitive processes. The findings prompt the question: Are the high level cognitive abilities of Black students, involving such reasoning processes as interpretation, analyses, syntheses, and evaluation, being sufficiently developed in desegregated senior high social studies classes? To deny Black students (or any students for that matter) these opportunities for intellectual growth of the highest order is a sad commentary on the quality of contemporary social studies teaching and the promise of desegregated education.

White students, in comparison to Blacks, received significantly more opportunities to participate directly and substantively in verbal interactions with teachers both in terms of observational data and students' perceptions. Teachers created more open contacts and asked more process questions of White pupils, as well as giving them positive feedback. These behaviors were observable among all teachers regardless of school level or whether they were Black or White. Moreover, elementary White pupils initiated more contact with fellow

pupils, junior high Whites created more call-out public response opportunities, and senior high White students were asked more product questions and received more "new questions" and sustaining feedback than did their Black classmates.

The differential verbal behaviors White pupils experienced are mutually supportive of each other. The argument can be advanced that it is only natural to compliment and praise (i.e., give positive feedback) those students who give correct answers to questions asked. This behavior can have impacts which reach far beyond the domain of the particular verbal exchange. Students' desires and need to ascertain their success are substantiated by teachers approval. Undoubtedly, praise for an academic task well done is internalized and students interpret it as praise of self as well. The result is heightened self-esteem and possibly increased participation in classroom interactions. Conversely, denial of interactional opportunities and withholding praise has an adverse affect on self-concepts and confidence in academic abilities.

By nature of the kinds of questions they were asked, White students received more opportunities to play a central role in the teaching-learning process than did Black students. Teachers tended to be less directive and more divergent in their academic interactions with White students. White students were allowed to choose to participate in classroom

activities. Questions were posed to the class as a whole and individuals selected to respond on the basis of their indicated desire to do so. Implicit in these behaviors are opportunities for teachers to control who participates in class discussions. By exercising their power of recognition (that is, ignoring and/or calling on particular students who volunteered to respond) they can deliberately direct the kind of interactions which result, and thus discourage or encourage participation at will without appearing to be discriminatory to particular students. Many of the questions asked were of the kind which require high level cognitive processes. White students were asked to do more than merely indicate whether an answer was right or wrong. Rather they were expected to give explanations for their responses, to integrate facts, to synthesize and analyze information, and to show interrelationships. It is very possible that these verbal behaviors reflected teachers' expectations of White students' academic performance abilities. There is little wonder, too, that the quality of White pupils' classroom interactions were rated better than Blacks if teachers generally expect White students achievements to be higher than Blacks. Without question these attitudes were reflected in teacher behavior, as evidenced by the kind of interactional opportunities availed to Whites as compared to Blacks.

Teachers gave White students answers to questions when they were unable to provide them themselves, in addition to praising and complimenting their correct responses. Both of these behaviors are assertions of teacher support. By comparison, interactions with Black students were often terminated by asking other students to give answers to questions Blacks were unable to answer. One wonders if these students subsequently asked were White. Evidence is unavailable to investigate the suspicion. Although both "give answers" and "ask others" are forms of terminal teacher feedback, or ways to end a pupil-teacher verbal exchange, one is connotatively less negative and judgmental than the other. While White students may not have succeeded in answering some questions asked, they nevertheless, remained in the good graces of teachers as is implicit in the nature of how teachers reacted to their responses.

These observed differential teacher interactions with White students were corroborated by students' perceptions of who receives praise from teachers and opportunities to participate in substantive classroom interactions. Without respect to school level or teacher ethnicity, White students were consistently identified by their peers as the ones who read the lesson aloud, did a fine job on reports, answer questions when no one else can, were the best students, and

were the ones called on most often by teachers. The conclusion is that as far as students are concerned, Whites are more intimately involved in the instructional process in terms of frequency, quality, and teachers' supportive reinforcement. All of these factors are of crucial importance in assessing classroom dynamics in desegregated schools, if we accept student perceptions as valid sources of data about what goes on in the classroom.

The correlational analyses reported in Chapter 4 confirmed the observations made earlier in Chapter 3, that Black and White teachers do differentiate their verbal behaviors with Black and White students in specific discernible ways. Teachers' estimates of the extent and quality of White pupils interactions correlated positively with these DIS items which measured substantive content questions, prolonged pupil-teacher interactions and teachers' praise of academic and general behaviors. They also correlated with student perceptions of who participates frequently and received praise for what they do in class. Of course, since White pupils gave few wrong answers, this variable correlated negatively with teachers' estimates of the frequency and quality of their participation. For Black pupils behavioral warnings, wrong answers, teacher praise and terminal feedback correlated negatively with teachers' estimates of the quality and frequency of their interactions. One would expect to find that

an increase in Black pupils' wrong answers and teachers' non-supportive behaviors toward Blacks would relate to a decrease in opportunities offered and Black students' willingness to participate. These same DIS measures correlated positively with students' perceptions that their Black classmates erased the chalkboard, were asked to sit up and pay attention, and did not get to say much in class. The correlational analyses also revealed that teachers' estimates of the frequency and quality of pupils' interactions were significantly and positively correlated with each other for both Black and White students. This suggests that pupils' opportunities to participate in pupil-teacher verbal interactions are contingent upon teachers' expectations of the quality of pupils' responses. These correlations were unquestionably positive despite the fact that teachers said they expected no differences in frequency and quality of pupils' interactions between Black and White students.

Thus, the logical relations between teachers' and students' verbal behaviors inferred from the analyses of variance were statistically supported by the correlational analyses. These results reaffirmed the contentions offered earlier that (1) Black students do not participate as often as Whites in class discussions; (2) White students participate in a more substantive nature and teachers are more academically encouraging

to them than to Blacks; (3) Black students' participation occurs through procedural, behavior regulatory channels which are tangential to academic activities; (4) teachers' attitudes and expectations are reflected in their verbal behaviors with students; and (5) how students behave is largely determined by how they perceive teachers to behave and are directly related to how teachers, in fact, do behave. Therefore, the results of the correlational analyses strengthen considerably the confidence in the differences in Black and White teachers verbal behaviors with Black and White students which this investigation revealed.

Present Results and Previous Research

The findings of this research investigation are generally supportive of previous research studies and theoretical statements asserting the value of multi-cultural education, desegregation, and interracial relations. The general absence of observed interactions between Black and White students support the findings of Ferguson (1970), Dennis and Powell (1972), and DeVries and Edwards (1972) who reported minimal interracial interactions between students in their studies. If it is true that Black students interactional behaviors are conditioned by and reflective of the prevailing social climate of the classroom, as St. John (1971) and Chesler (1971) suggest, then this

situation might help to explain why in this study Blacks tended not to initiate contacts with teachers as often as White Students. The assertions made by Banks and other ethnic studies theoreticians (Banks and Grambs, 1972; Banks, 1973) as to teachers' low expectations of Black pupils' academic performance were confirmed in this investigation by nature of the kinds of observational data and students' perceptions of teachers' verbal behaviors with Blacks. They were also supported by the correlational analyses. The frequency of discipline, procedural and behavioral and negative feedback contacts made with Black students, as compared with the substantive questions, positive reinforcement, and sustaining feedback which prolong interaction given to White students are testimonials of teachers' differential expectation. Although previous research on teacher expectations (e.g., Rosenthal and Jacobson, 1968; Brophy and Good, 1969; Jeter, 1972; Cornbleth, Button and Davis, in press) did not deal specifically with pupil and teacher ethnicity as a determinants, the results of the present study are comparable to earlier ones.

This investigation of pupil-teacher verbal interactions, and the conclusions which derived from it, relate directly and importantly to the U. S. Commission on Civil Rights study (1973) of Anglo (White) and Chicano (Mexican-American) teachers' interactions with Anglo and Chicano students. Both

are interaction analyses studies concerned with the effect of pupils' and teachers' ethnicity on classroom verbal interaction. The Commission used the entire class as the unit of analysis while this investigator concentrated on dyadic interactions of teachers with individual students. The target student and teacher populations in the earlier study were Chicano and Anglo, whereas in the present study the targeted populations were Blacks and Whites. Both studies took place in southwestern states. The Commission's study involved three states while data for the present study were collected from a single school district within one of these states. This present investigation was more comprehensive in that it combined observational data with teacher estimates and pupil perceptions of pupil-teacher dyadic interaction in examining the verbal dynamics of desegregated social studies classes. The U. S. Commission used only observational data.

The structural similarities of these two studies are, in themselves, significant. But, more important is the question of results. How did the results of this study compare with those of the U. S. Civil Rights Commission? As was the case with Chicano students, Blacks received less praise and encouragement, gave more wrong answers, were asked fewer substantive questions, and participated in pupil-teacher interactions less often than Whites. The U. S. Commissioners

reported that the amount of praise students received varied significantly with the ethnicity of the teacher. Chicano teachers gave considerably more praise to Anglo students than they gave to Chicano students, or Anglo teachers gave to either group of students. A similar behavioral pattern was observed on three measures of pupil-teacher interaction in the present study. Junior high school Black teachers made significantly more discipline contacts with Black students than with White students or White teachers did with any students. Elementary Black teachers asked more process questions and made more positive behavioral contacts with White students than with Black students. Furthermore, the U. S. Commission found that White students received less critical talk, and their contributions were accepted and incorporated into teacher talk more often than Mexican American students. Similar results were obtained in this study as is evident by the fact that White students received more process questions, positive feedback, and answers from teachers to questions they were unable to answer themselves.

Therefore, the findings of this investigation are in complete accord with those of the U. S. Civil Rights Commission. The fact that the geographic locale and theoretical framework of the two studies were quite similar lends additional credence to the conclusions. And, the Commission's conclusions that "Mexican American pupils . . . receive considerably less

of some of the most beneficial forms of teacher behavior than do Anglos in the same classroom," and that "in view of the central importance of interaction to learning, it is evident that Chicano pupils are not receiving the same quality of education in the classroom as are Anglo pupils" (1973; p. 17, 18-19), are equally as applicable to Black students.

The findings resulting from these two studies clearly demonstrate that Black and Mexican American children (the two predominant minorities of the Southwest) are not receiving educational opportunities comparable to White students. They also raise several questions that need to be answered in the process of assessing the impact of desegregation on the educational process. Are pupil-teacher verbal behaviors in the classroom a function of the social phenomenon of desegregation? Do teachers across the nation behave similarly with other ethnic minority students as teachers of the Southwest were observed to interact with Black and White students? Do these interactional patterns persist when the ethnic composition of the classroom changes? Will similar results occur in classrooms where Blacks constitute the majority? Obviously, to date, those aspects of schooling most crucial to the educational process-pupil-pupil and pupil-teacher verbal classroom interactions - have been overlooked in the controversies over education. Future efforts need to be redirected to focus on

changing teachers' classroom attitudes and behaviors toward minority youth if the spirit of desegregation is to be actualized and more equitable educational opportunities made available to all students.

Social Implications of Significant Findings

The relatively small number of measures of Black and White teachers' differential verbal interactions with Black and White students in desegregated social studies classes may be a function of several conditioning experiences. Very simply, the findings may reflect the general low level, even absence of dyadic interactions in classrooms. Observers who were assigned to collect observational data in the classrooms were often appalled by the virtual non-existence of pupil-teacher interactions, especially in the junior and senior high schools. Consider these comments of the observers:

This teacher lectures all the time. There is hardly any pupil-teacher interaction. And, when he does ask questions he usually answers them himself.

The teacher ignored several student questions and concentrated on his own presentation.

The teacher lectured. There were many open questions and call out responses but few individual students' contributions were recognized.

Students work in groups most of the time, and there is little teacher-student interaction going on.

Why was this so? Teachers may consider dyadic interactions, as a teaching technique inappropriate for social studies education, as well as believing that it is inappropriate to junior and senior high schools. Yet, current emphasis in social studies education require more, not less, pupil-teacher and pupil-pupil interactions. The premise of such instructional strategies as inquiry, the decision-making process, and values clarification is for students to analyze and synthesize thought processes and behavioral patterns. They require teachers to function in the capacity of facilitators of learning processes instead of the more traditional role of giving factual information. One wonders, then, if pupil-teacher interactions are minimal, to what extent are instructional and curricular changes in social studies education being implemented in the classroom. Or, it could be that the measures on which significant differences were obtained are the ones believed most essential to the educational process. Still another possible explanation is that teachers differentiate their verbal behaviors in ways which were impossible to measure with the particular instrumentation used in this investigation.

Or, could it be that teachers, in fact, differentiate their interracial behaviors in a few select ways instead of comprehensively? If racial prejudices are the motivating forces behind these differentiations the shift from blatant to subtle social expressions of these attitudes would cause a similar shift in teacher-classroom behaviors.

The argument could be advanced that the observed interactions of teachers with targeted pupils are not representative of their interactions with students in general. Teachers may interact differently with the entire class than they do with individuals. Two additional points must be considered which cause this argument to be questionable in the present investigation. First, the white targeted pupils were selected at random, and the teachers were unaware that their verbal behaviors with particular individual students were being observed. Second, all Black students in a given class served as targeted students. So, in essence, the teachers' interactions with Black targeted pupils in the classes studied, constituted their interactions with all Black students.

The small number of Black students present in any given classroom may have affected the kinds of verbal contacts teachers established with them. Black teachers may have been impelled to interact with them in such a way as to avoid being accused of showing favoritism. This explanation could account for the disparities of their discipline contacts with Black

students as compared with other students. White teachers may have been more relaxed and less threatened in teaching situations involving a relatively few Black students. Or, it could be that it is much easier for White teachers to ignore Black students without it being a blatant, deliberate or conscious effort when there are so few Blacks around. These behaviors would not be easily detectable because of their subtleties. Both Black and White teachers may have been overly solicitous in their efforts to treat all students the same, due to the nature of their professional training, their previous personal experiences, and their attitudes about educational desegregation. This is a stance often taken in educational institutions and society in general, because of the unpopular notion of discriminating behavior and the negative connotations it conveys in the context of Black-White social relations. The small number of Blacks in the classes studies could have facilitated the "sameness in treatment" for Black and White students because Blacks were so emersed and easily absorbed by the overwhelming numbers of Whites.

Furthermore, teacher training to date has done little to help pre- and inservice teachers to understand that to treat all students identically is to be extremely discriminatory. Students are different, and equality of treatment in the classroom requires differential interactions. If teachers do

otherwise, they are possibly being ethnocentric, forcing students to conform to their normative structures, ignoring the societal realities of cultural pluralism, and functioning contradictorily to the social studies goal of self actualization for all students. The criteria of equitable treatment for all students are relative to teachers' experiential frames of reference, and are possibly culturally determined. Since the overwhelming majority of teachers participating in this study were white, "sameness of treatment," of necessity, would be defined by them in terms of "whiteness." White students then would have an advantage over Blacks in the same classrooms. If we consider that teachers' verbal interactions with students as part of a complex system of rewards and punishments, if these are contingent upon students demonstrating acceptable social behaviors, and socially acceptable behaviors stem from White norms, it follows logically then that White students would receive greater opportunities to interact positively with teachers. Conversely, Black students' interactions would be progressively fewer and more negative the further they deviated from these norms. Such criteria are ethnocentrically determined and cause teachers to discriminate against Black students although very subtly and often inadvertently. Moreover, the professional training and practical experiences are such that they may cause Black and White teachers to behave

increasingly more similarly rather than dissimilarly. The questions which come to mind include: how "White" do Black teachers have to become in order to function in the educational systems, and achieve a modicum of "success?" What kinds of cultural and social sacrifices must both Black students and teachers make for the sake of perpetuating a set of norms which, by nature of their conception, are possible contradictions to their cultural experiences and obstacles to their self-actualization? Answers to these questions should help explain the general lack of Black students' involvement in classroom interactions, and the fact that Black teachers did not behave differently from White teachers on a greater number of the measures of pupil-teacher interaction.

The prevailing school atmosphere is a factor worthy of consideration in analyzing the social implications of the verbal dynamics operant in the classes studied. Desegregation as an educational phenomenon was a relatively new experience for the school district where the research data were collected. After only two years experience with desegregation, Black students may still have felt rather uncomfortable in the surroundings and unsure about how their overtures would be received by White teachers and students. White students may have experienced some apprehensions about approaching Blacks as well as being intimidated by their presence. Both Black and White teachers may have had similar feelings. It is reasonable to expect that

if attitudes such as these are present in the minds of students and teachers, they will affect how the individuals relate to each other in the classroom. Either nonaction, in the form of no verbal contact at all, or distorted action, in the form of over solicitations, may be adopted by both students and teachers as the most feasible approach to take for fear of aggravating repressed racial tensions. Consider, for example, the fact that teachers' direct verbal contacts with students and pupil-pupil interactions were generally non-significant. At first glance, this observation may appear to be socially insignificant. But it could mean that teachers did not direct questions specifically to Black students for fear of embarrassing them or calling attention to their presence. At the same time they may not have asked questions directly of White students to avoid being accused of favoritism and expressing prejudice toward Blacks by default. A potentially less threatening approach for teachers to take would be to pose questions to the class in general and recognize only those students who volunteered to respond. Perhaps teachers are over zealous in their efforts to avoid "trouble," which may stem from distorted expectations of Black students' social, racial, and academic attitudes and behaviors. Too often, teachers who are unfamiliar with Black students' cultural backgrounds and intellectual potentials expect them to be hostile, uncooperative, and to exhibit poor academic performance.

Previous researchers have demonstrated clearly how academic expectations become self-fulfilling prophecies. Undoubtedly, the same premises hold true for social and behavioral expectations as well.

What do all of these suggested interpretations of the obtained results mean? Do they mean that teachers are deliberately or unintentionally discriminatory toward Black students? Are Black students kept from participating in the heart of the educational process by conscious design or by fault of unconscious attitudes and habits. Are the data obtained representative of classroom interactions in general or specific only to those classes studied? What are the most reliable sources of information about what actually happens in the classroom - observational data, teachers' estimates or pupils' perceptions? Are pupil-teacher verbal interactions indicative of what happens in the broader context of the entire educational process? If educators aspire toward achieving participatory democracy and honoring the dictates of cultural pluralism, as they claim to do, why do they continue to impose contradictory values in the classroom, such as rigid control, silence, directiveness, and conformity of all students to identical norms? Do teachers' verbal interactions with students reflect their personal racial attitudes as well as the general school atmosphere, or are they independent of the social climate outside of the classroom? Do students' general

feelings of insecurity in interracial situations affect their academic interactions? All of these factors exist within the school community as situational variables which must be considered in understanding the diverse dimensions and implications of the academic and interactional behaviors of students and teachers in desegregated schools. They certainly merit serious consideration and systematic analyses in future research investigations.

Implications for Teacher Education

The findings of this study are significant in and of themselves, but even more important are the implications for teacher education which can be inferred from the results obtained. Generally, teachers need to become more conscious of the verbal and social dynamics operating in desegregated classrooms, the consequences of their attitudes and actions in determining students' behavioral patterns, the relations between students of different ethnic and racial backgrounds, and how they might behave differently to create a more positive, supportive classroom climate which fosters a more equitable educational process for both Black and White students. They need to become more aware of their own racial attitudes as well as those of students, in addition to becoming familiar with the culturally specific behavior patterns of Blacks and other ethnic groups. They need to understand, and behave accordingly,

that they are causing grave injustices by treating culturally different students identically. They must learn to work and verbally interact differentially with students from different ethnic and cultural backgrounds without being intimidated, patronizing, over-solicitous or discriminatory.

Moreover, teachers need to know how their own perceptions of their classroom behavior compare with those of students and outside observers. They must also understand that although students may perceive their behavior quite differently from themselves, they are not necessarily wrong. Rather, students' perceptions are real to them and must be considered as a significant source of data in working effectively with students, and modifying teacher behaviors to bring about a classroom climate more conducive to learning for all students. Results from systematic analyses such as the ones obtained in this investigation can be used in the process of designing and for redirecting teacher education programs.

Specifically, preservice and inservice teachers should have a working knowledge of the research data on pupil-teacher verbal classroom behavior, teacher expectations and their effects on teachers' and pupils' classroom behaviors, and the effectiveness of school desegregation in terms of inter-racial relations and academic performance. They also need to become familiar with the theoretical justifications and proficient in the use of instrumentation generally used to

compile these data. Teacher education programs should include theoretical knowledge and practical experience in using interaction analysis observation schedules to record and interpret teacher behaviors among their training components.

Interaction analysis systems are valuable feedback and evaluation tools for systematizing and objectifying analyses of teachers behavior in the process of continuous staff development. The potential of these techniques have been vividly demonstrated by Flanders and others (Amidon and Hough, 1967). As accountability, criteria-reference and performance-based education become increasingly more important and complex, so do the questions of how to determine if these objectives are being met. Data obtained on teachers observed differential interactions with students of different ethnic backgrounds in the same classrooms can be used for this purpose. Interaction analyses are also useful means of collecting data that can assist teachers in selecting content materials, in making appropriate curricular modifications relative to the expressed desires and needs of students, and in planning activities specifically designed to facilitate interracial interactions. For this tool to be most useful to teachers in quests such as these, they must not only know how to use them but be able to interpret the data obtained. This is a feasible and worthwhile mandate for teacher education programs to undertake.

The findings of this study suggests further that teachers need to heighten their perceptual awareness of their own

racial attitudes, values and behaviors. Pre-service and continuing education programs should incorporate activities and experiences designed to help teachers become more introspective and perceptive in general as a prelude to better understanding their own behaviors, to examine, clarify and modify their own attitudes and values, and to learn the skills necessary to help students to do likewise. Thus, the systematic study of social psychology, group dynamics and the verbal dynamics of classrooms in general and desegregated classrooms in particular merit greater consideration in teacher education programs.

Undoubtedly, teachers' negative verbal interactions and behaviors toward Black students stem from distorted expectations which in turn grow out of a lack of knowledge about their personal and cultural experiences outside the school community. Teacher education institutions and school districts need to implement courses with an experiential focus, designed for the study of the cultural experiences of Blacks and other ethnically different people. These should emphasize understanding the perspectives, attitudes, values, customs and mores of Blacks, Black language styles and rules regulating intergroup and interpersonal communication, and understanding how cultural characteristics are determinants of Black behavioral patterns manifested in the classroom. These experiences may suggest some ways in which teachers ought to

modulate their styles of communication if they wish to encourage Black students to participate more fully in classroom verbal interactions.

Learning strategies for detecting, analyzing and attacking racism must be an integral part of all education programs which profess to deal with cultural pluralism. The subtleties of teachers' differential verbal behaviors with Black and White students in desegregated classes may very well be a function of racism. A reasonable assumption follows that teachers' and students' racial attitudes and behaviors, and thus the verbal dynamics of the classroom can be changed through studying about racism. Change in all forms should be the watchword of all teacher education programs.

All of the educational programs suggested here are outgrowths of the research which revealed differences in teachers' verbal interactions with Black and White students in desegregated classes in elementary, junior high, and senior high schools. To be most effective each should include field or practical experiences to allow teachers in training the opportunity to test their conceptual knowledge against the realities of existence.

Recommendations for Future Research

Although the results of this investigation are indeed significant, they are far from being definitive and conclusive. Other research ought to follow naturally from this explanatory research on such a crucially important issue as pupil-teacher verbal behavior in recently desegregated schools. The obtained significant differences between Black and White teachers' verbal interactions with Black and White targeted pupils are subject to numerous interpretations. Most of them are speculative and tenuous. Follow-up research, possibly including in depth interviews with the students and teachers involved, should be done to test the validity of some of these interpretations, and to offer others not mentioned here. This information could help to further explain the data that were not otherwise possible with the present instrumentation.

This study needs to be replicated as it was designed and extended with modifications in design. Certainly, it should be replicated in different teaching fields. It would be interesting to note the effect of random visits with scheduled visits on how teachers and students behave. Random visits could be used to minimize the possibilities of teachers "staging" their behaviors. Similar research should be conducted in schools whose Black and White racial compositions among both teachers and students are more equally balanced.

This balance must be reflected in the sample research population. It is possible that the number of Blacks in a given class may have a definitive influence on teachers' interactions with their students in both general and specific ways. It would also be worthwhile to study the differential verbal behavior of Black and White teachers with Black and White students using pupil and teacher sex as controlling variables.

The present investigation needs to be expanded cross-culturally, regionally, and longitudinally, and include the added dimensions of interaction and comparative analyses. Similar instrumentation can be used to study the verbal dynamics of multi-ethnic or culturally pluralistic classrooms in terms of student and teacher ethnicity. Stated differently, research needs to be conducted to see if teachers from ethnic groups other than Blacks and Whites interact differentially with culturally different students. For example, in what ways do Mexican American, Asian American and Native American teachers, as well as Blacks and Whites, differentiate their verbal interactions with Black, White, Mexican American, Asian American and Native American students. Little attention in professional literature and even less in research, has been given to analyses of Black teachers' classroom attitudes and behaviors with either Black or White students. Educators need to know what their racial attitudes are and whether their

behavior with Black students is contingent upon the racial composition of the classroom. Do Black teachers behave differently with Black pupils in predominantly Black classes than they do with Black pupils in predominantly white classes is a worthy research question indeed. It would form a natural and logical corollary to the present study which examined, in part, Black teachers behavior in predominantly white schools. It would add immeasurably to the generalizability of the findings of the present research if similar studies in the future, were to be more regional and national in focus. Whereas this study was limited to a single school district, future ones might include several districts in the same state, several states within a particular geographic region, or a representative sample population drawn from the nation at large. Although the present study makes inferences about the relationship between teachers racial attitudes and their teaching behaviors, future ones should examine these relationships systematically. The racial attitudes of both Black and White teachers, in the Southwest and other regions of the United States relative to their classroom behavior with students from cultural backgrounds different from their own need to be carefully scrutinized.

Comparative studies of pupil-teacher interracial verbal interactions would produce valuable information. Future

researchers should compare the verbal behaviors of teachers in schools having a predominantly white population with teachers in schools having a predominant ethnic minority population, or schools wherein the student population is about evenly distributed among whites and ethnic minorities. Or, one could compare cross-racial pupil-teacher interactions using socio-economic status, of both pupils and teachers, as a control variable. The question of concern here would be how does economic and social class membership compare with ethnic group identity as determining factors in how teachers relate verbally to students. A third idea worthy of consideration for future research is to use teaching experience and school locations as control variables in studying teachers' verbal behavior in desegregated schools. How do the inter-racial verbal behaviors of inexperienced teachers compare with those of experienced teachers? Does the fact of how long a school has been desegregated affect how teachers behave with pupils? Do teachers working in de facto desegregated inner city schools interact differently with Black students than those teaching in schools whose desegregation was accomplished through busing?

It would also be revealing to study effects of using interactional analyses data as a feedback tool instrumental in changing teachers' classroom behaviors. The idea behind this

recommendation is to see if knowing the results obtained from systematic studies of their verbal behaviors with Black and White students will have any effects, initially and longitudinally, on their future behavior with the same students. Another similar study might test the effects of intervention programs which emphasize knowledge of Black culture on teachers' verbal behaviors with Black students.

Future studies which control for curriculum topics and teaching styles would be useful undertakings. Rather than take teachers at random, this recommendation suggests that the verbal behaviors of teachers who have similar teaching styles or educational philosophies, and are working with identical or similar curriculum matters be studied. The findings which result would be of even greater importance since they would not be susceptible to criticisms suggesting that teachers' verbal behaviors are as much a function of the content being taught, as their particular teaching style, expectations of pupils, their racial attitudes, and their general educational philosophies.

Another recommendation is that future research be undertaken to identify the social and attitudinal variables present in desegregated school environments which influence the educational process, positively or negatively, as seen through pupil-teacher verbal interactions. The classroom is not immune to what goes on around it. Examination of the social situational

variables would contribute significantly to a more thorough and realistic understanding of the verbal dynamics operational within the desegregated classroom. Previous research has demonstrated that attitudes and expectations are determinants of behavior in general, and that the school's racial composition has some effect on interracial attitudes and behaviors. Future research should seek to identify other distinctively and racially determined variables which cause dissonance and interfere with the effective functioning of the educational process.

A final recommendation is that the instrumentation used in this study be tested further and refined so as to enhance the reliability of the data it produces. Other instruments need to be revised which can be used to study the classroom from the vantage point of student perceptions. This source of information about the classroom from the vantage point of student perceptions.

This source of information about the classroom has been largely ignored in previous research. Yet, students' perceptions are a salient source of data about pupil-teacher verbal interactions, and the overall educational process, as this study so amply demonstrates. More of this kind of research is needed. These data can be used further to test the accuracy of teachers' perceptions and observational data on classroom interactions. And, because what students

variables would contribute significantly to a more thorough and realistic understanding of the verbal dynamics operational within the desegregated classroom. Previous research has demonstrated that attitudes and expectations are determinants of behavior in general, and that the school's racial composition has some effect on interracial attitudes and behaviors. Future research should seek to identify other distinctively and racially determined variables which cause dissonance and interfere with the effective functioning of the educational process.

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perceive to be true is their reality and determines how they relate to teachers, it is doubly important that those perceptions be thoroughly researched. Teachers must know about students perceptual realities if the educational process is to function most effectively for students in general and especially those in desegregated schools.

A Concluding Comment

Very clearly, this study reveals the inadequacy of plans to desegregate schools. Most public and professional attention to date has been given to such enterprises as busing, pairing, closing schools, and clustering students in new geographic areas. These administrative devices constitute a mere beginning in the desegregation process. They are peripheral to the core of the educational process - what happens in the classroom between students and teachers. Little attention, even in the professional literature, has been given to the heart of the pedagogic arena: pupil-teacher interactions within the context of the desegregated classroom. School administrations, governmental officials, professional associations, teachers and teacher educators must direct their energies to where there are greater pay-offs for pupils. Black and White children sitting in nearby desks may be desegregated schooling, but hardly speaks at all to the education of the children at

those desks. Energies will be more wisely spent if future efforts are directed toward achieving real desegregation by changing teachers' racial attitudes and their subsequent verbal behaviors. The objective must be to equalize Black and White pupils' opportunities to participate fully in the educational process through revolutionizing the patterns of pupil-teacher interactions occurring in desegregated classrooms.

APPENDIX A

TEACHER-CHILD DYADIC INTERACTION SYSTEM

A. Overview of the Observation System

The Teacher-Child Dyadic Interaction System is designed to capture dyadic interactions between teachers and individual pupils in the classroom. It applies only to those verbal interactions in which the teacher is dealing with a single, individual child. It differs from other systems in that

1. It makes no attempt to code interactions occurring between the teacher and the class as a whole.
2. The individual student rather than the class is the central focus of attention and the unit of analysis.
3. It is specifically designed for use in studying intra-class individual differences, such as the communication of differential performance expectations by teachers.
4. It is applicable to the study of teachers' differential interactions with students from different ethnic and racial backgrounds in the same classroom.

The system allows for the coding of every verbal interaction between the teacher and an individual student into one of several categories: response opportunities, questions, feedback opportunities, work-related contacts, behavioral

contacts, feedback opportunities, work-related contacts, and procedural contacts. It is also possible to preserve the initiation-reaction sequential order of teacher-pupil interactions, and to determine the proportional relations between teacher initiations and pupil initiations. This feature makes it possible to separate effects due primarily to the teacher from effects due primarily to the pupil.

The system also allows for raw individual scores to be converted into percentage scores so as to neutralize the effects of differences in frequencies of different kinds of interactions. In this way, the quantity and quality of interactions can be studied separately, teacher interactions with individuals and/or groups of individuals can be studied comparatively and the entire class can be treated as a single unit of analysis by combining the scores of the individual pupils. Thus, the system provides for the analysis of pupil-teacher interaction from a "class perspective" as well as an "individual perspective."

With slight modifications the Teacher-Child Dyadic Interaction System was expanded to accommodate another important aspect of this classroom interaction of concern to the present interaction. It provides a means of collecting data, on pupil-pupil interactions, especially by identifying the initiators and the recipients, and the kinds of feedback responses they offer to contact opportunities availed to them.

B. Application of the Interaction System

Prior to starting to code teacher-pupil interactions each coder fills in the General Class Activities (see Appendix B) at the top of the coding sheet. These include the subject or grade being observed, the activities students were engaging in, the date of the observation, identifying which students are absent from class, the starting time when the observer begins coding and the stopping time when he stops, and how much time elapses, identifying the coder or observer by name, and numbering the coding sheets in sequential order. Spaces labeled stop time are provided to the left on the coding sheet for the coder to make notations of the time whenever a focal activity ends and another begins.

The first and the last five minutes of each coding period are set aside for observation of pupil-pupil interaction. The coding begins when one of the targeted pupils initiates a contact with another student. Then both the initiating and receiving students' names (represented by numbers) are entered in the appropriate columns identifying the kind of contact opportunities and feedback responses.

Coding of pupil-teacher interaction begins when the teacher poses a question or otherwise provides a response opportunity. Any given contact requires several notations. Once the teacher makes contact with a student, his name,

represented by a number, is entered in the appropriate pupil column. Other entries are made horizontally, across the coding sheet to identify the kind of interactions taking place. The level of question asked, the kind of pupil responses, and the kind of teacher feedback offered to the response are indicated. If the verbal contacts are work-related or procedural, and if these are child-created or teacher afforded they are so noted in the appropriately labeled columns. Therefore, if the teacher initiates the verbal exchange entry into the coding process may begin with the categories of response opportunities, work-related contacts procedural contacts, or behavioral contacts. If a student initiates the interaction coding entries begin in the work-related or procedural columns. A separate line on the coding sheet is used to record each interaction. If the teacher provides more than one response opportunity to the same student check marks (✓) are entered under his name instead of repeating the name again. When the teacher moves on to another student a new name (signified by an Arabic number) appears on the coding sheet, and entry notations are repeated.

C. Definition of Categories^{*}

I. Public Response Opportunities

This section of the instrument refers to four different kinds of opportunities available for students to make public verbal responses to questions asked by the teacher.

A. Discipline Question (DISCIP). - This is a control technique. The teacher deliberately calls on a child who appears to be distractive as a means of forcing him to pay attention and engage in interaction.

B. Direct Question (DIRECT). - The teacher poses a question to a specific student who has not raised his hand, called out a response, or otherwise volunteered to answer the question. The teacher alone determines who will respond.

C. Open Question (OPEN). - The teacher asks a question, waits for students to volunteer to answer by raising their hands, and then calls on one of them. Both student and teachers are involved in determining who will respond.

D. Call Out (CALL). - A student calls out an answer without waiting for the teacher to call on him or raising his hand.

* The descriptions of these categories are extracted from the explanations found in Brophy, G. E. and Good, G. L. Teacher-Child Dyadic Interaction: A Manual for Coding Classroom Behavior. Report Series No. 27. Austin: Research and Development Center for Teacher Education, The University of Texas at Austin, 1969. pp. 5-31; 39-47.

II. Level of Public Questions

This section refers to the kind of questions asked by the teacher relative to the academic subject matter and non-academic matters.

A. Process Questions (PCSS). - A "why" or "how" question requiring the student to explain the cognitive and/or behavioral steps necessary to solve the problem or get an answer. It is divergent.

B. Product Questions (PROD). - Are convergent and require students to give a correct response to a specific question. They usually begin with "who," "what," "when," "where," "how much," or "how many."

C. Choice Questions (CHOICE). - Instead of producing a substantive response, the student chooses the correct response from among two or more expressed or implied alternatives. These include yes - no questions, either - or questions, right - wrong questions, and questions which give the correct response among multiple alternatives.

D. Self-Reference Questions (SELF). - The student is asked to make some non-academic contribution to class discussion. These questions deal with personal experiences, preferences, feelings, attitudes, opinions, predictions, etc. They most often occur when there is a break in the academic classroom routine, and when the teacher is introducing a topic.

III. Student's Answer

- A. Correct Answers (+). - If the student responses to the questions are accepted by the teachers as satisfactory.
- B. Part-Correct Answers (+). - Correct but incomplete responses, or responses which are acceptable but are not the answers the teacher is looking for.
- C. Incorrect Answers (-). - Unacceptable responses which are rejected by the teacher.
- D. No Response (DK). - The student says he does not know the answer to the question asked or makes no response whatever.

IV. Teacher's Terminal-Feedback Responses

These categories identify teacher's verbal behaviors which bring response opportunities to a close.

- A. Praise (++). - A teacher's positive evaluation of a student's response, in the form of a verbal compliment (Ex: "Very good;" "fine," "excellent point," "very thoughtful," etc.)
- B. Affirmation (Affirm Right). - The teacher indicates that the student's response is correct and acceptable ("yes," "that's right," "okay," positive nod of the head etc.)
- C. No Response Feedback (0). - The teacher gives no verbal feedback whatever to the student's response, nor accepts or rejects it by shaking the head.

D. Negation (Negate Wrong). - Teacher indicates verbally ("no," "that's wrong") or non-verbally (shaking the head) that the student's response is incorrect and unacceptable.

E. Criticism (=). - Teacher's rejection of a student's response, accompanied by statements of negative evaluation (Don't you ever pay attention," "that's a dumb answer," "what a silly thing to say," "if you were to listen carefully, you would know the answer").

F. Process Feedback (PCSS). - The teacher reviews the question with the student and explains how to respond to it instead of merely accepting or rejecting the child's response.

G. Gives Answer (GIV ANS). - The teacher provides the correct answers to his own questions, but does not elaborate on it.

H. Ask Others (ASK OTH). - The teacher asks a second or third student to answer the question when the first one asked fails to give a response.

I. Call Out (CALL). - A student blurts out a response to the question before the teacher has an opportunity to single any one child out to answer.

V. Teacher's Sustaining Feedback Responses

These categories include teacher behavior which increases the student's chances to respond to questions by prolonging the interactional exchange.

A. Repeats Question (REPT). - The teacher asks the same question a second time of the same pupil, or indicates that he is waiting for the student to respond to the original question.

B. Rephrase or Clue (REPH or CLUE). - The teacher asked the same question a second time in a somewhat modified or elaborated form. The intent here is to aid the student in answering the original question.

C. New Question (NEW Q). - The teacher asks another question requiring a different answer, which would be inappropriate response to the original question.

VI. Teacher-Pupil Dyadic Contacts

These contacts differ from response opportunities in that they occur privately on a one-to-one basis between teacher and pupil. They are not meant to be public or for the class as a whole. These contacts are coded according to whether the teacher or the student is the initiator.

A. Work-Related Contacts. - Teacher-pupil contacts which have to do with completing homework and seatwork assignments. They are child-created if the student solicits aid from the teacher by raising his hand or going up to the teacher's desk. If the teacher initiates the interactions they are coded as Teacher-Afforded. She may do this by calling the student to her desk, or moving around the room from student to student.

Five different kinds of feedback responses which are available to the teacher are coded. The coding system allows for these responses to be coded separately, depending on whether they occur in conjunction with child-created or teacher-afforded contact. These include:

1. ++ - Praise
2. PCSS - Process feedback
3. FB - Product feedback
4. = - Criticism
5. ? - "Don't know" (used when the coder is unable to determine which of the above four categories is operating).

B. Procedural Contacts. - All dyadic teacher-pupil interactions which are not coded as work-related contacts, behavioral contacts, or response opportunities. They are child-created when the student seeks permission to do something, reports something to the teacher, requests supplies or equipment, etc. Procedural contacts are teacher-afforded when the teacher asks a student to run an errand, to help

with clean-up jobs, to pass out equipment and supplies, enlists the student's aid in classroom management, etc.

Teacher responses to child-created procedural contacts may be:

1. ++ - Praise
2. FB - Feedback
3. = - Criticism

C. Behavioral Contacts. - Occur when the teacher makes some comment on the student classroom behavior. Their evaluations may be:

1. ++ - Praise
2. W - warning (a suggestion for the student to desist from what he is doing before it goes too far).
3. = - Criticism (negative evaluation).

VII. Student-Student Dyadic Contact.

Interaction between students is coded in this category on the basis of who initiates the interaction and who is the recipient. Several kinds of response opportunities are available to each.

A. Student Initiation Opportunities

1. POS (Positive initiation) such as "you did good on that question," "I agreed with your statement," etc.
2. NEUT (Neutral - some contact is initiated but the coder is unable to determine if it is positive or negative).

3. NEG (Negative initiation, such as "you're wrong," "that's a terrible way to behave," etc.)

4. NV (Non-verbal response, such as touch the student, shaking the head, smiling, etc.)

B. Receiver Responses

1. POS (Positive reaction)

2. NEUT (Non-committal response)

3. NEG (Negative response)

4. NR (No response)

5. NV (Non-verbal response).

APPENDIX C

Teacher's Name _____

Subject _____

Period _____

TEACHER'S ESTIMATES OF QUALITY OF
PUPIL-TEACHER INTERACTIONPart 1
(sample format)

Directions: For each pupil, place a slash mark (/) on the line beside his name to indicate your estimate of the quality of that pupil's interaction with you.

NOTE: The line is a measured 100 centimeters. Using a centimeter rule, the distance from "none" (or zero) to the slash mark represents that pupil's score for this instrument.

Student's name	Very Low	Very High
1.	_____	
2.	_____	
3.	_____	
4.	_____	
5.	_____	
6.	_____	
7.	_____	
8.	_____	
9.	_____	
10.	_____	
11.	_____	

Student's name

Very Low

Very High

12.

13.

14.

15.

16.

17.

18.

19.

20.

21.

2

22.

23.

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29.

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31.

32.

33.

34.

Teacher's Name _____

Subject _____

Period _____

TEACHER'S ESTIMATES OF THE EXTENT OF
PUPIL-TEACHER INTERACTION

Part 2
(sample format)

Directions: For each pupil, place a slash mark (/) on the line beside his name to indicate your estimate of the extent of that pupil's interaction with you.

NOTE: The line is a measured 100 centimeters. Using a centimeter rule, the distance from "none" (or zero) to the slash mark represents that pupil's score for this instrument.

Student's Name	Very Low	Very High
1.	_____	
2.	_____	
3.	_____	
4.	_____	
5.	_____	
6.	_____	
7.	_____	
8.	_____	
9.	_____	
10.	_____	
11.	_____	
12.	_____	

Student's Name	Very Low	Very High
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
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35.		

APPENDIX E

School _____

Teacher's Name _____

Subject _____

Student Sociometric Questionnaire

Directions: Pretend you are in your social studies class. To whom is the teacher talking most often when she ask the following questions or makes these comments. Place the name of the student in the space provided preceding the question/statement. You may use your name if you desire.

- | | |
|-------|---|
| _____ | 1. Read the section of the lesson out loud for us. |
| _____ | 2. Sit up and pay attention. |
| _____ | 3. You did a fine job on your report. |
| _____ | 4. Erase the chalkboard for me. |
| _____ | 5. No one else seems to know the answer so will you answer the question for me? |
| _____ | 6. Who doesn't get to say much in class. |
| _____ | 7. Who does poor work in this group. |
| _____ | 8. Who is the best student in this class. |
| _____ | 9. Who does the teacher call on most often in this class? |

APPENDIX F

SUMMARY OF CODES USED FOR IDENTIFYING THE CATEGORIES ON THE
TEACHER-CHILD DYADIC INTERACTION SYSTEM

To facilitate organizing the data on the Teacher-Child Dyadic Interaction System for statistical analyses, each column or category was assigned a numerical code. The code and the category it represents are listed below. These categories are explained in detail in Appendix A, and are depicted visually in Appendix B.

Category Code Number		Category description
1	Public Response Opportunities	Discipline contacts
2		Direct contacts
3		Open contacts
4		Call-out contacts
5	Levels of Questions	Process questions
6		Product questions
7		Choice questions
8		Self-Reference questions
9	Pupil Responses	Correct response
10		Partially correct, but incomplete response
11		Incorrect response
12		Don't know response

Category Code Number

Category Description

13	Teacher Feedback	Teacher praises and affirms correct responses
14		Teacher makes No Response
15		Teacher criticizes and negates wrong response
16	Teacher Terminal Feedback	Process feedback
17		Teacher gives the answer
18		Teacher refers the question to another student
19		Student calls out answer to question
20	Teacher Sustaining Feedback	Teacher repeats question
21		Teacher rephrases question or gives clue to answer
22		Teacher asks a new question
23	Work-related Contacts	Pupil-created work-related contacts
24		Teacher-afforded work related contacts
25	Procedural Contacts	Pupil created procedural contacts
26		Teacher afforded procedural contacts
27	Behavioral Contacts	Positive behavioral contacts
28		Warning behavioral contacts
29		Negative behavioral contacts

Category Code Number	Category Description
30	Positive student-student initiation
31	Neutral student-student initiation
32	Negative student-student
33	Non-verbal student-student initiation
34	Positive student responses
35	Neutral student responses
36	Negative student responses
37	No response student responses
38	Non-verbal student responses

APPENDIX G

VARIABLES DERIVED FROM RAW SCORES
ON THE TEACHER-CHILD DYADIC INTERACTION SYSTEM

Each of the Variables used to test the major hypotheses of this study were derived by translating the raw frequency scores into average frequencies or ratio scores. Each of the variables on the several instruments was then given an identification number (1, 2, 3, etc.) to facilitate the statistical analyses of these data. Variables 1-29 were derived from the Teacher-Child Dyadic Interaction System; Variable 30 from the Teacher Estimate of the Extent of Pupil-Teacher Interaction; Variable 31 from the Teacher Estimate of the Quality of Pupil-Teacher Interaction; and Variables 32-49 from the Student Sociometric Questionnaire. Given below are the identification numbers, the variables they represent and the formula used to derive that variable (or average frequency) from the raw data. The latter is most appropriate for the Teacher-Child Dyadic Interaction System since the Variables represent percentage ratios derived from average frequencies.

Percentage Ratio Variables	Description of Variables	Formula (Average Frequencies)
1	Discipline Contacts / Total Response Opportunities	1/ 1+2+3+4
2	Direct Contacts/Total Response Opportunities	2/ 1+2+3+4
3	Open Contacts/Total Response Opportunities	3/ 1+2+3+4
4	Call-out Contacts/Total Response Opportunities	4/ 1+2+3+4
5	Process Questions/Total questions	5/ 5+6+7+8
6	Product questions/Total questions	6/ 5+6+7+8
7	Choice questions/Total questions	7/ 5+6+7+8
8	Self-Reference questions/Total questions	8/ 5+6+7+8
9	Correct Pupil Responses/Total Pupil Responses	9/ 9+10+11+12
10	Partially Correct Responses/ Total Responses	10/ 9+10+11+12
11	Wrong Responses/Total Responses	11+12/ 9+10+11+12
12	Positive feedback/Total teacher Feedback	13/ 13+14+15
13	No Feedback/ Total feedback	14/ 13+14+15
14	Negative feedback/Total feedback	15/ 13+14+15
15	Process feedback/Total terminal feedback	16/ 16+17+18+19

Percentage Ratio Variables	Description of Variables	Formula (Average Frequencies)
16	Give Answer/Total terminal feedback	17/ 16+17+18+19
17	Ask Others/Total terminal feedback	18/ 16+17+18+19
18	Call Out/Total terminal feedback	19/ 16+17+18+19
19	Repeat question/Total sustain feedback	20/ 20+21+22
20	Rephrase or Clue Question/Total sustain feedback	21/ 20+21+22
21	Ask New Question/Total sustain feedback	22/ 20+21+22
22	Child initiated work contacts/Child Initiated + Teacher Afforded Work Contacts	23/ 23+24
23	Teacher Afforded Work Contacts/ Child Initiated + Teacher Afforded Work Contacts	24/ 23+24
24	Pupil-initiated Procedural Contacts/ Pupil-Initiated + Teacher Afforded Procedural Contacts	25/ 25+26
25	Teacher Afforded Procedural Contacts/ Pupil Initiated + Teacher Afforded Procedural Contacts	26/ 25+26
26	Positive Teacher Behavior/Total Teacher Behavior	27/ 27+28+29
27	Negative Teacher Behavior/Total Teacher Behavior	28+29/ 27+28+29
28	Total pupil-pupil initiations/Total pupil-pupil initiations + Total pupil recipient responses	30+31+32+33/ 30+31+32+33+34+35+36+37+38

Percentage Ratio Variables	Description of Variables	Formula (Average Frequencies)
29	Total pupil recipient responses/Total pupil- pupil initiations + Total pupil recipient responses	$34+35+36+37+38/30+31$ $+32+33+34+35+36+$ $37+38$
30	Teacher estimates of extent of targeted pupils participating in teacher-pupil interaction	Total score of TP/ number (N) (N) of TP (targeted pupils)
31	Teacher estimates of quality of targeted pupils participation in Teacher-pupil interaction	Total score of TP/N of TP
32	Targeted Pupils nominations on item 1 of SSQ ₁	
33	Targeted Pupils Nominations on item 2 of SSQ ₁	
34	Targeted Pupils Nominations on item 3 of SSQ ₁	
35	Targeted Pupils Nominations on item 4 of SSQ ₁	
36	Targeted Pupils Nominations on item 5 of SSQ ₁	
37	Targeted Pupils Nominations on item 6 of SSQ ₁	
38	Targeted Pupils Nominations on item 7 of SSQ ₁	
39	Targeted Pupils Nominations on item 8 of SSQ ₁	
40	Targeted Pupils Nominations on item 9 of SSQ ₁	
41	Number of Targeted Pupils Nominated for Item 1 on SSQ ₂	

Percentage Ratio Variables	Description of Variables	Formula (Average Frequencies)
42	Number of Targeted Pupils Nominated for Item 2 on SSQ ₂	
43	Number of Targeted Pupils Nominated for Item 3 of SSQ ₂	
44	Number of Targeted Pupils Nominated for Item 4 of SSQ ₂	
45	Number of Targeted Pupils Nominated for Item 5 of SSQ ₂	
46	Number of Targeted Pupils Nominated for Item 6 of SSQ ₂	
47	Number of Targeted Pupils Nominated for Item 7 of SSQ ₂	
48	Number of Targeted Pupils Nominated for Item 8 of SSQ ₂	
49	Number of Targeted Pupils Nominated for Item 9 of SSQ ₂	

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